The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 129, No. 12 CHICAGO, ILLINOIS NOVEMBER 17, 1945
COPYRIGHT, 1945, BY AMERICAN MEDICAL ASSOCIATION

TRANSCRANIAL REMOVAL OF INTRA-ORBITAL TUMORS

J. GRAFTON LOVE, M.D.
AND
WILLIAM L. BENEDICT, M.D.
ROCHESTER, MINN.

The diagnosis of orbital tumors is at times very difficult and the decision as to the best surgical approach to tumors situated within the orbit is often even more difficult. When there is no question of intracranial extension, tumors in the anterior portion of the orbit can be treated quite satisfactorily by the ophthalmic surgeon through an anterior orbital approach. However, since many posterior orbital tumors have an intracranial component, as pointed out by Dandy [1] in his monograph, since the prime purpose of the surgical treatment of intraorbital tumors is to conserve vision and to have as nearly normal function of the eye as possible, and since the transcranial approach to such tumors through the roof of the orbit gives maximal exposure and direct visualization of the structures within the posterior part of the orbit and permits at the same time the removal of any intracranial extension of the tumor, the neurosurgeon should be responsible for the surgical treatment of such retrobulbar orbital tumors. Nevertheless, cooperation between the ophthalmologist and the neurosurgeon can provide the patient the maximal benefit from treatment. It should require little emphasis that the ophthalmologist must bear the greater part of the burden in determining the treatment in these cases, for he is most likely to see the patient first because of proptosis or visual disturbance, symptoms referable to the eye. There are, of course, diseases other than intraorbital tumors which produce proptosis and visual disturbance, and they must be excluded. Sometimes a period of observation is necessary before the nature of the lesion can be determined. If proptosis increases or vision fails, neurosurgical consultation should be had to attempt to arrive at a diagnosis, since there are many intracranial lesions which produce proptosis and visual loss, even unilaterally.[2]

Of the surgical approaches to the orbit, the most direct is through the outlet, the anterior opening. The eyelids, the septum orbitale and the eyeball fill the outlet and limit the space for operation under direct vision within the orbit to the anterior third. A tumor situated in the posterior portion of the orbit,[3] such as an encapsulated hemangioma, may be exposed to view by an opening made along the superior orbital rim and exposing the roof of the orbit, but the dissection of such a tumor must be done by touch, as it is practically impossible to retract the tissues sufficiently for a full view of the tumor and its attachments.

Tumors situated in the anterior third of the orbit should be removed by the most direct route or by a route that will cause the least trauma and result in the least loss of function of the eye and eyelids and the least disfigurement. Anatomic conditions determine that course. To reach a tumor in the lacrimal fossa, for example, the surgeon may use the frontal approach either through the upper conjunctival cul-de-sac or through the upper lid beneath the brow to the bony rim of the orbit. The former route calls for a wide canthotomy and bares the cornea to exposure and trauma during the operation. The latter route does not sever any important structure and permits more room for manipulation than the approach through the cul-de-sac. Only the anterior approach need be considered for removal of tumors that are confined to the anterior portion of the orbit, including osteomas, which, as we know, arise outside the orbit within the sinuses and extend into the orbit by a small pedicle.

Another route to the orbital contents is by way of a resection of the lateral wall of the orbit, Krönlein's operation. This has never been a much used operation because the working space obtained by reflecting the bony flap is always disappointing. Even though the bony portion of the reflected wall is entirely removed temporarily, as it may be, little or no more working space is obtained than by the approach through the brow incision.

Krönlein's operation is useful in removal of tumors of the optic nerve without enucleation of the eyeball or in removal of encapsulated tumors situated near the apex of the orbit. For removal of tumors in this region a transcranial approach is usually to be preferred. The choice of approach must, however, at times be determined by a factor other than that of accessibility. If further decompression of the orbit is desired, it is hardly possible to get the required bone resection by Krönlein's method, whereas by the transcranial approach not only can the entire roof of the orbit and the optic canal be removed but the lateral wall can also be resected as far as necessary.

For removal of tumors that are definitely confined to the orbit, even in the posterior third, the frontal or

From the Section on Neurologic Surgery (Dr. Love) and the Section on Ophthalmology (Dr. Benedict), Mayo Clinic.

1. Dandy, W. E.: Orbital Tumors: Results Following the Transcranial Operative Attack, New York, Oskar Piest, 1941.

2. Voris, H. C., and Adson, A. W.: Meningiomas of the Sphenoidal Ridge with Unilateral Exophthalmos: Report of 2 Cases, S. Clin. North America **14**: 663-672 (June) 1934.

3. Benedict, W. L.: Removal of Orbital Tumors, Surg., Gynec. & Obst. **58**: 383-389 (Feb. 15) 1934.

the Krönlein operation may be entirely adequate, as has been proved many times. However, one seldom can be certain that a tumor known to be in the apical portion of the orbit does not extend beyond the orbital walls, or where its origin may be.

Meningioma is the most frequent of orbital tumors that involve the wall of the orbit and the cranial cavity. Meningioma, or endothelioma, is found in persons of all ages and is particularly malignant in children. It is also probably the most frequent of all tumors found in the posterior portion of the orbit in children less than 15 years of age. Such tumors cannot be removed by either the anterior route or Krönlein's operation but only by the transcranial method.

The transcranial approach, permitting resection of the optic nerve to the chiasm, is the operation of choice in enucleation of eyes for retinoblastoma. While other foci may be present in the central nervous system to account for multiple gliomas, and while metastasis may be present before the retinoblastoma has been detected, the complete removal of the nerve is desirable because the tumor is known to spread by direct extension along the optic nerve to invade the brain.

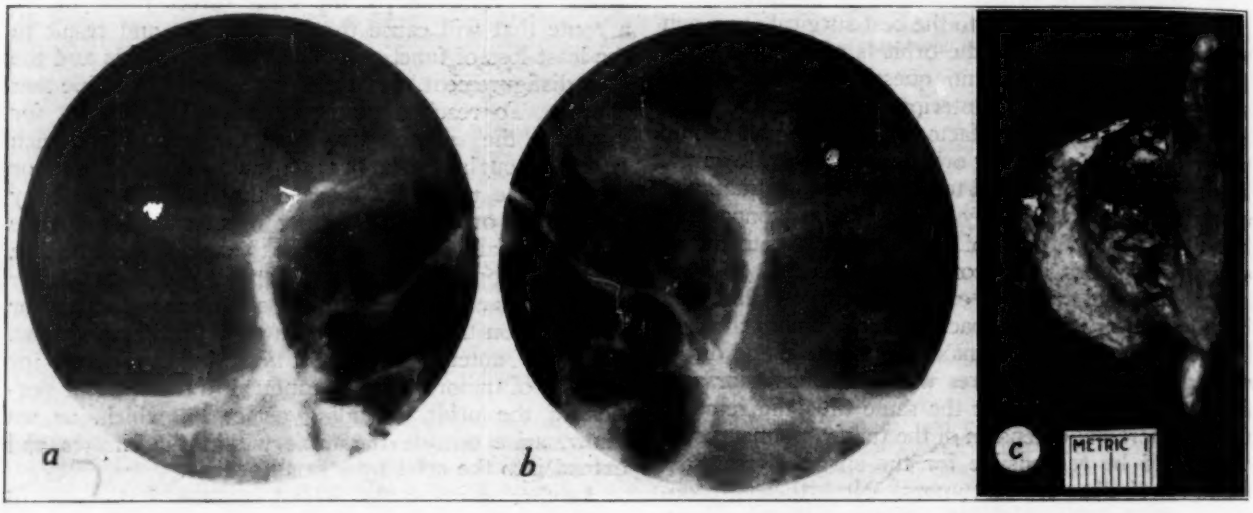

Fig. 1. (case 27).—*a*, normal left optic foramen; *b*, enlarged right optic foramen; *c*, astrocytoma of right optic nerve removed transcranially. The erosion was due to intracranial extension of the tumor.

It is difficult to argue that removal of all of the optic nerve rather than merely the intraorbital portion will save more lives. There is some reason for the belief that the tumor extends slowly along the nerve, and there is the possibility that it may be interrupted in the canalicular portion.

As long as there is uncertainty regarding the extent of a tumor in the posterior portion of the orbit, most tumors so situated should be removed by the transcranial route. Recently the transcranial method of approach to the orbit has been made quite safe, and as more surgeons are trained in the necessary technic of head surgery than are ophthalmologists in orbital surgery the better results obtained by the transcranial operations of neurosurgeons become apparent.

Figures taken from the records of the Mayo Clinic show that in the years 1907 to 1944 inclusive there were 2,985 patients who had tumors of the eye or the adnexa or both, of whom 738 (24.7 per cent) had tumors of the orbit. More than thirty-one different kinds of tumors were encountered. Many were primary tumors of the eye and orbit in various stages of development. Operation was performed on a total of 395 by the method best designed to meet the demands of the situation. The transcranial method was employed in 35 cases between Nov. 6, 1933 and Nov. 14, 1944.

SURGICAL TECHNIC

The approach to tumors within the posterior portion of the orbit that are to be removed transcranially is the same as that used by neurosurgeons for the transcranial [4] removal of tumors involving the pituitary gland. Many surgeons vary a little in their technic of elevating a frontal flap, but essentially the steps are as follows:

Through an incision curved upward and forward from in front of the external ear the scalp is dissected free from the underlying temporal fascia and turned forward. The temporal fascia, temporal muscle and pericranium are incised around the margins of the proposed bone flap except at the base in the temporal area where these structures serve as a hinge on which to bend the bone flap downward. The bone flap is then elevated after making multiple burr holes and connecting them with a Gigli saw. The dura mater is stripped from the floor of the anterior cranial fossa (which is for all practical purposes the roof of the orbit), and the frontal lobe of the brain, protected by the dura mater, is gently retracted upward and toward the opposite side of the cranium. With the patient receiving drop ether over the end of a Magill intratracheal tube, this is not difficult. The orbital plate is then perforated and removed with rongeurs. It is unnecessary to incise the dura mater if the tumor is entirely intraorbital; if, however, the tumor extends through the optic foramen or the superior orbital fissure, then it is a simple matter to incise the dura mater along the sphenoid ridge in order to expose the entire tumor and effect a complete removal. If the necessity for incising the dura mater is not present, it is better to leave it intact as a protection for the frontal lobe of the brain and as a barrier against bleeding and possible infection. Blood in the subarachnoid spaces will produce meningism and cause the patient distress and the surgeon, sometimes, unnecessary concern.[5] At times in effecting the complete removal of an intraorbital tumor the ethmoid air cells

4. Some few surgeons still use the transsphenoid approach.

5. Hammes, E. M., Jr.: Reaction of the Meninges to Blood, Arch. Neurol. & Psychiat. **52**: 505-514 (Dec.) 1944.

may be opened and thus the danger of infection is a real one. In 1 of our cases there was gross pus within the orbital tumor. Yet, in spite of this, we have not lost a single patient from infection.

We have not encountered bilateral orbital tumors which have required transcranial removal. We have had several cases of glioma of the optic chiasm with extension of the lesion along both optic nerves into the orbits, but because of the fact that removal of such a tumor would result in total immediate and permanent blindness we have been reluctant to remove such tumors. Possibly this is a mistake, but the results of conservative treatment seem to justify our present methods.

Bilateral orbital tumors can be removed in one stage by utilization of the coronal or Souttar flap. The incision goes across the head, paralleling the coronal suture. Then the scalp, pericranium, temporal fasciae and muscles anterior to the incision are displaced forward to the supraorbital ridges. The portion of frontal bone thus exposed is removed and kept wrapped in a sterile towel wet with saline solution until it is to be replaced at the end of the operation. The dura mater is stripped from the crista galli and cribriform plate of the ethmoid and from the orbital roofs, thus giving exposure of the entire anterior cranial fossa.

Intraorbital Tumors Removed Transcranially

Case	Age, Years	Sex	Chief Complaint	Duration	Roentgenogram	Pathologic Condition	Extent of Lesion	Result of Operation
1	12	♀	Protrusion O. S.	8 yrs.	Positive	Hemangio-endothelioma	Orbit	Recovered *
2	31	♀	Headaches Failing vision O. S.	1½ yrs. 6 mos.	Positive	Neurofibroma	Orbit	Recovered
3	50	♀	Prominent O. D.	9 mos.	Positive	Meningioma	Orbit	Recovered *
4	49	♀	Failing vision O. S.	14 mos.	Negative	Meningioma	Orbit	Recovered
5	27	♂	Failing vision O. S. Blindness O. S.	4 wks. 10 days	Negative	Aneurysm	Orbit	Recovered
6	4	♀	Unequal pupils Protrusion O. S.	2 yrs. 5 mos.	Positive	Cavernous hemangioma	Orbit	Recovered
7	10	♂	Prominent O. S.	2½ yrs.	Positive	Optic nerve astrocytoma	Orbit	Recovered
8	19	♂	Prominent O. S.	5 mos.	Positive	Osteoma	Orbit	Recovered
9	29	♀	Prominent O. D.	6 yrs.	Positive	Meningioma	Orbit and cranium	Recovered
10	48	♀	Loss of vision O. D.	2 yrs.	Negative	Meningioma	Orbit and cranium	Recovered *
11	25	♀	Prominent O. S.	2½ mos.	Positive	Hemangioma	Orbit	Recovered *
12	30	♀	Painful and prominent O. D.	6 mos.	Positive	Epidermoid	Orbit and cranium	Recovered
13	37	♀	Prominent and painful O. D.	1½ yrs.	Positive	Granuloma	Orbit and extradural	Recovered
14	19	♀	Prominent O. D.	3 yrs.	Positive	Angioma	Orbit	Recovered
15	20	♂	Prominent O. S.	1 yr.	Positive	Epidermoid	Orbit and cranial bone	Recovered
16	42	♀	Failing vision	5 yrs.	Negative	Meningioma	Optic canal	Recovered
17	30	♂	Nasal obstruction	2 yrs.	Positive	Meningioma	Orbit, frontal sinus and nose	Recovered
18	52	♂	Prominent O. D.	4 yrs.	Positive	Organized blood clot	Orbit and frontal bone	Recovered
19	44	♀	Bulging O. D.	1 yr.	Positive	Osteoma	Orbital plate	Recovered
20	31	♀	Failing vision O. S. Prominent O. S.	3 yrs. 3 yrs.	Positive	Angioma	Orbit	Recovered
21	3	♂	Prominent O. S.	3 wks.	Negative	Astrocytoma optic nerve	Orbit and cranium	Recovered
22	22	♀	Tumor behind O. S.	2-3 mos.	Positive	Angioma	Orbit	Recovered
23	13	♂	Prominent O. D.	2½ yrs.	Positive	Osteitis fibrosa	Orbit	Recovered
24	49	♀	Failing vision O. U.	2½ yrs.	Negative	Angioma	Orbit (right)	Recovered
25	27	♀	Loss of vision O. D. Prominent O .D.	2 yrs. 1 yr.	Positive	Astrocytoma optic nerve	Orbit and cranium	Recovered
26	16	♀	Fulness O. D.	3 yrs.	Positive	Osteitis fibrosa	Orbit	Recovered
27	13	♂	Prominent O. D.	1+ yr.	Positive	Astrocytoma optic nerve	Orbit and cranium	Recovered
28	52	♀	Diplopia Prominent O. S.	13 yrs. 13 yrs.	Positive	Meningioma	Orbit	Recovered
29	53	♂	Double vision Loss of vision O. D.	..... 2 mos.	Negative	Meningioma	Orbit and cranium	Recovered
30	1½	♂	Deformity of face	15 mos.	Positive	Neurofibroma	Orbit and cranium	Died 2d day after operation; hyperthermia and increased intracranial pressure
31	2	♀	Prominent O. D.	3 mos.	Negative	Astrocytoma optic nerve	Orbit	Recovered
32	29	♂	Proptosis O. S. Headaches	9 yrs. 9 yrs.	Positive	Osteitis orbital plate	Orbit	Recovered
33	2 mos.	♂	Prominent O. D.	Since birth	Positive	Fibrosarcoma	Orbit	Recovered
34	32	♀	Failing vision and blindness O. S.	3½ yrs.	Positive	Meningioma	Orbit and cranium	Recovered
35	48	♀	Diplopia Failing vision O. S.	5 yrs. 5 yrs.	Positive	Meningioma	Optic canal	Recovered

* Previously reported.[7]

MATERIAL

As a result of the observations of the ophthalmologists, radiologists, neurologists, neurosurgeons and pathologists at the clinic and a study of a group of cases in which intraorbital tumors have been removed following the elevation of a frontal skull flap and the removal of a part of the orbital roof, our ideas for the successful handling of tumors within the orbit have become well crystallized.

In this paper, which of necessity cannot be a monograph on orbital tumors, we have excluded all tumors

that have arisen on or in the face and invaded the orbit secondarily. We have excluded tumors of the maxillary antrum that have secondarily invaded the orbit. Likewise we have excluded from this report many tumors, meningiomas, gliomas and lymphoblastomas which were mainly or largely (as far as size was concerned) intra-

Fig. 2 (case 30).—Neurofibroma which involved the intraorbital portion of the ophthalmic nerve and extended intracranially to involve the gasserian ganglion and all three peripheral branches.

cranial with minimal intraorbital extension. What is even more important, we have excluded several hundred tumors which were located in the anterior position of the orbit and which were operated on by the ophthalmic surgeons.

ANALYSIS OF DATA ON ORBITAL TUMORS REMOVED TRANSCRANIALLY

In a group of 35 consecutive cases[6] in which intraorbital tumors were approached through the roof of the orbit after frontal craniotomy had been performed, it was found that 22 patients were female and 13 were male. The average age of the patients at the time of operation was 27.5 years, the oldest patient being a man aged 53 and the youngest a boy aged 2 months.

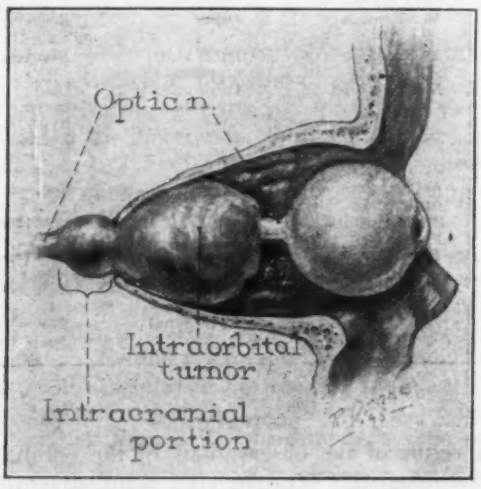

Fig. 3 (case 25).—Astrocytoma of right optic nerve showing intracranial extension which could be removed only by means of a transcranial approach.

The tumor occurred in the right orbit in 18 cases and in the left in 17 cases. There was no case of removal of bilateral intraorbital tumors in this series. Proptosis or prominence of the eye on the side of involvement was the most important symptom of which complaint was made and the most frequently detected sign. Thirty-three patients had proptosis or exophthalmos (the only exceptions being cases 10 and 16, table), and in 20 cases it was the first symptom that the patient had noticed. Failing vision and headaches are late symptoms, and headaches usually mean extension of the tumor beyond the confines of the orbit.

Roentgenologic examination of the head and orbits, including the optic foramens, is a most valuable part of the investigation of the patient suspected of having an intraorbital tumor (fig. 1). In 27 of the 35 cases here analyzed the roentgenologist gave definite help in establishing the diagnosis by reporting changes in the configuration of the orbit, alterations in the size and shape of the optic foramens, the presence of erosion or formation of osteoma involving the walls of the orbit or the presence of calcium (signifying old hemorrhage) within the orbit.

When the tumors were uncovered and removed, it was found that in 22 cases the tumor was entirely within the orbit, whereas in 10 cases there was intracranial extension. In the 3 remaining cases there was extension into adjacent bone or into the frontal sinus and in 1 case even into the nose.

Fig. 4 (case 25).—Astrocytoma of optic nerve removed transcranially.

The pathologic character of the lesions varied a great deal and can be determined for each case by referring to the table.[7] There was only one death in the series and this case, which is reported in detail, was most unusual.

Case 30.—A boy aged 1½ years was observed by the parents, when the child was 3 months of age, to have a "bump" in the right frontotemporal region, although they had noted shortly after birth that the right upper eyelid was thickened and larger than the left.

Examination revealed considerable proptosis of the right eye, but accurate exophthalmometer reading was impossible because of poor cooperation. There was a soft nodular puffiness throughout the right lid, at the outer portion of the fissure and extending into the temporal region. At the posterior part of this region was a small, irregular, hard tumefaction, which was considered bony. Fundus examination was not done. Roentgenologic examination revealed what happened to be an anomaly of development of the skull in the region of the right orbit.

On June 24, 1944 right transfrontal craniotomy was performed with right orbital decompression and resection of an intra-

6. Adson, Craig, Uihlein and Kloos gave permission to have their cases included. In 21 of the cases operation was performed by one of us (Love).

7. References to cases mentioned in the table as having been reported previously:
Benedict, W. L., and Love, J. G.: Cavernous Hemangioma of the Orbit with Hyperostosis: Report of a Case, Am. J. Ophth. **22**: 1149-1151 (Oct.) 1939.
Love, J. G., and Rucker, C. W.: Meningioma of the Sheath of the Optic Nerve; Report of a Case, Arch. Ophth. **23**: 377-380 (Feb.) 1940.
Love, J. G.: Transcranial Removal of an Intraorbital Meningioma, Proc. Staff Meet., Mayo Clin. **10**: 213-215 (April 3) 1935.

orbital tumor and subtotal resection of the intracranial portion of the same tumor. When the bone flap was turned down there was found an osteoma of the outer third of the roof of the right orbit. The bony mass which had been felt in the temporal area prior to operation was an outward bulging of the squamous portion of the temporal bone. When the roof of the orbit, including the osteoma, had been removed the periorbita appeared abnormally thin. When it was incised, a very firm tumor, extending from the anterior portion of the orbit to the superior orbital fissure, was uncovered. It felt very fibrous and suggested a neurofibroma. A specimen of its wall, submitted for fresh frozen section diagnosis, was reported as definitely neoplastic. Since no other abnormal mass in the orbit could be felt, the tumor was divided and nerve bundles were found in it. The nerve was larger than any nerve normally within the orbit, including the optic nerve, and because of its position it seemed unlikely that it could be the optic nerve. The anterior portion of the neoplastic nerve was dissected from the anterior portion of the orbit and removed. Then the nerve was dissected backward to the superior orbital fissure. The dura along the wing of the sphenoid was then opened to be sure of the exact location of the optic nerve. It was found at least 1.5 cm. below the level of, and mesial to, the aforementioned neoplastic nerve. It was normal in color and size.

Fig. 5 (case 22).—Size and position of intraorbital angioma that was removed transcranially.

The dura mater along the tip of the temporal lobe was then incised. Much to our surprise, it was about ten times as thick as it should have been and very vascular, suggesting a sessile type of meningioma. The involved dura was incised toward the midline below and the incision was extended upward over the temporal lobe and the inferior portion of the frontal lobe to join with the previously made incision along the wing of the sphenoid. Practically all of this dura was involved in this process. Then the neoplastic nerve and the involved dura were grasped and dissection was carried down to the cavernous sinus, at which point a stick tie of silk was placed around the nerve, which now was proved to be the ophthalmic division of the fifth nerve. The involved dura and neoplastic nerve were resected. The foramen rotundum and foramen ovale were identified, and it appeared that the branches of the fifth nerve going through these foramens were likewise involved (fig. 2). It was impossible to free the dura mater from the three branches of the gasserian ganglion and from the ganglion itself. It seemed that in order to resect the ganglion and remove it with all three branches it would be necessary to open the cavernous sinus. Since the patient had already been under anesthesia for a long time and since the tumor was reported as benign, it did not seem advisable to attempt complete removal of the ganglion and the maxillary and mandibular divisions. All bleeding was under control. The dural defect was covered with animal membrane. The bone flap was tied in place with two pieces of wire. The muscle, fascia and galea were closed with continuous number 0 chromic catgut and the skin was closed with a continuous cotton suture.

The pathologist reported the tumor as a fibrous neurofibroma. In spite of the fact that the child was given a transfusion during the operation and again that evening and that the postoperative course was fairly good for eighteen hours, at the end of that period the patient suddenly had a generalized convulsion, which was controlled by aspirating cerebrospinal fluid through the cranial flap. Hyperthermia developed and could not be controlled. The patient died approximately twenty-four hours after operation.

Fig. 6 (case 22).—Appearance eleven days after transcranial removal of intraorbital anginoma (see fig. 5).

Figures 3 to 12 inclusive illustrate various cases in which intraorbital tumors were removed by the transcranial approach.

Short summaries of 4 cases illustrative of the problems involved in the diagnosis and treatment of tumors of the orbit follow:

Fig. 7 (case 23).—Proptosis of right eye due to osteitis fibrosa cystica involving the roof of the orbit.

Case 33.—A boy was the youngest patient in our series of intraorbital tumors. At the time of operation he was only 2 months of age, and naturally the examination was not as easy as it would have been if he had been an adult.

The patient was referred to the clinic because of severe proptosis of the right eye since birth. The mother was under the impression that the abnormal prominence of the right eye had not increased. On examination the right eye was found to be pushed forward and temporalward. Because of lack of cooperation the exophthalmometer could not be used, but it was estimated that the exophthalmos was at least 10 mm. and probably more. It was observed that when the child was asleep the right eye was partially open (fig. 13). A nonpulsating mass could be palpated on the nasal side of the eyeball. The eye was freely movable but could be pressed backward into the orbit only slightly. The pupil was well dilated and the

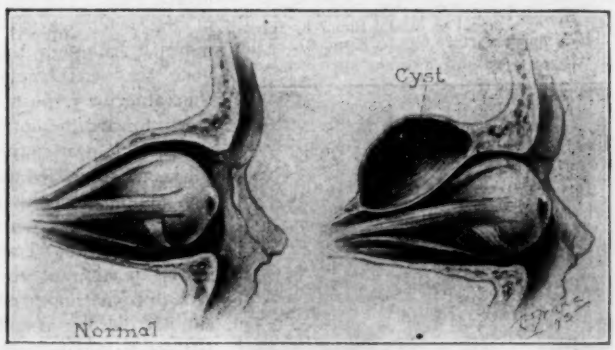

Fig. 8 (case 23).—Bone cyst pushing the eyeball forward in the orbit.

fundus was easily seen. No choking of the disk was present and there was no edema of the retina. Roentgenologic examination of the head revealed an expanding lesion of the right orbit, which had caused enlargement of the orbit and orbital fissure.

Right transfrontal craniotomy was performed with the patient under ether anesthesia. Because of the youth of the patient

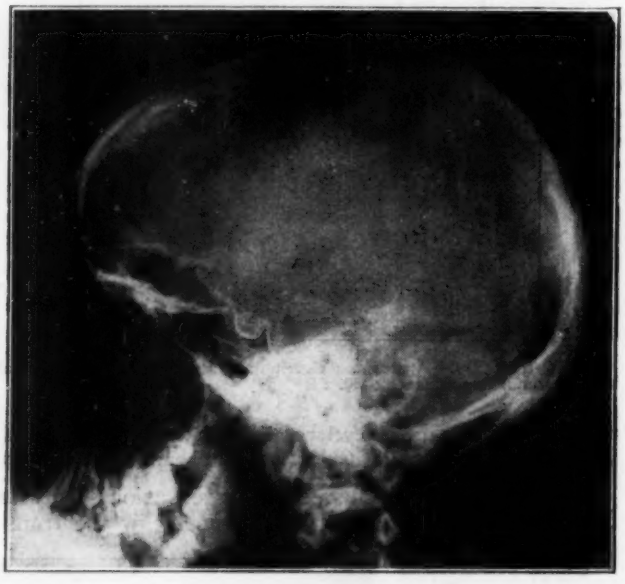

Fig. 9 (case 23).—Lateral view of head showing cyst in roof of right orbit.

no burr holes were necessary. After the scalp had been reflected over the right frontal region, most of the right frontal bone was freed from the underlying dura mater and the longitudinal sinus. The flap was narrowed at its base just above the orbit with a DeVilbis bone biter and then thinned with a Gigli saw and bent forward. When the dura mater was elevated from the roof of the right orbit it was immediately noted that the roof of the orbit was convex intracranially because of an expanding intraorbital mass. The roof of the orbit was removed. Although the bone was extremely thin anteriorly, posteriorly toward the optic foramen it was quite thick and suggested an osteomatous formation such as one sees with meningiomas. The mesial portion of the periorbita appeared slightly discolored and felt solid on palpation. It was incised and a large fatty, grayish, granular, relatively avascular tumor was uncovered. The tumor was removed piecemeal with a curet and sucker. One portion of the tumor was attached to a small nerve at the junction of the mesial and posterior walls of the orbit. This nerve was silver clipped and divided in order to remove the attached tumor.

Fig. 10 (case 23). — Appearance twelve days after removal of orbital tumor by transcranial approach (see figs. 7, 8 and 9).

Fig. 11 (case 15). — Appearance twelve days after the transcranial removal of an intraorbital epidermoid tumor.

After removal of the tumor there was a large cavity within the posterior mesial portion of the orbit. The dura mater was not opened at any time. The optic nerve was not exposed. The superior orbital fissure, which was enlarged in the roentgenogram, was not visualized. The bone flap was replaced and anchored in position with a few interrupted silk sutures. The scalp was replaced and closed hurriedly with through-and-through continuous silk sutures because the child's condition at this point was critical in spite of the fact that we had taken the precaution of placing a needle in the vein in the left arm and administration of fluids had been started before the operation was begun. The tumor was reported as a slow growing cellular neoplasm either from a nerve sheath or from the meninges. The note was made that it was not a typical neuroma or a typical meningioma but a fibrosarcoma. A hematoma developed postoperatively between the scalp and the bone flap and this became infected. With the subcutaneous use of penicillin and application of sterile warm moist packs to the scalp the infection

Fig. 12 (case 10).—Appearance three and a half months after transcranial removal of intraorbital meningioma. Six and a half years later she reported "no further trouble" with her eye.

was controlled and the patient was able to return home approximately six weeks after operation (fig. 14). Subsequently he was reported in good condition.

Case 12.—An intradiploic, intracranial and intraorbital epidermoid tumor was removed through a right transfrontal craniotomy. A woman aged 30 was referred to one of us (Benedict) because of pain and proptosis of the right eye, which had been called to her attention by her sister six months prior to her coming to the clinic. It was impossible from the history to determine whether the symptoms had been sudden or gradual in onset.

Examination revealed proptosis of 7 mm. in the right eye. The lids protected the eye well. On palpation there was considerable tenderness on pressure at the inner third of the supraorbital margin with the sensation of fulness. Nothing could be expressed from the tear sac. Extraocular movements were slightly impaired in all directions. There was alternating exotropia. The pupils and pupillary reflexes were normal. Tactile tension was within normal limits. The anterior cham-

bers were of normal depth. The irises were normal. The lenses and the vitreous were clear. The fields of vision were normal. The fundus of the right eye showed a disk of good color with blurring of the upper and lower poles and nasal margin with what appeared to be early edema extending into the nasal portion of the retina. The veins were mildly engorged. The macular regions showed an increased light reflex. No hemorrhages nor exudates were seen. Examination of the left fundus revealed a disk of good color with slight blurring of the upper and nasal margins suggesting early edema. The rest of the fundus was normal. The vision was 6/5 in each eye.

Roentgenologic examination of the head revealed a destruction of the posterior inferior portion of the right orbit and wing of the sphenoid extending laterally where there was irregular erosion of the inner table of the lateral portion of the frontal bone and contiguous portion of the sphenoid and parietal bones. The changes in the bones were interpreted as those of pressure secondary to a benign type of tumor, probably an atypical epidermoid.

A right transfrontal type of craniotomy was performed. A large cystic epidermoid tumor was evacuated and the capsule

Fig. 13 (case 33).—Two months old child with tumor in right orbit. Note inability to cover globe with eyelids.

of the tumor, which was partially intradiploic but also intracranial and intraorbital, was removed. The roof of the orbit had been completely and cleanly eroded by the tumor and it was easy to follow the continuation of the intracranial dura mater along the right optic nerve to form the periorbita. It was not necessary to incise the dura mater or the periorbita in this case, as the capsule of the tumor was easily stripped from these structures.[8]

Occasionally the nose and throat surgeon is the first to encounter a brain tumor or an intraorbital tumor when he attempts to remove a "polyp" from the ear or from the nose. Meningiomas fairly often extend into the external auditory canal and into the frontal sinuses or even into the nose itself. In the following case an intraorbital tumor was first attacked within the nose by a nose and throat surgeon:

CASE 17.—A man aged 30 had suffered from nasal obstructive symptoms for two years and had had some discharge from the right nostril for one and a half years. He had known of a growth in the right nostril and of unusual prominence of the right eye for one year. For two months there had been some blurring of vision. The patient stated that two months before coming to the clinic he had had an intranasal operation for the removal of a mass the microscopic examination of which was reported as showing either a psammoma or a psammosarcoma. It was after this operation that the patient began to note blurring of vision.

The patient's general physical appearance was not remarkable except for rather severe proptosis of the right eye. The vision

Fig. 14 (case 33).—Postoperative appearance. Lids now cover the eyeball, since proptosis has been relieved by removal of tumor.

was 14/21 in each eye. Pupils, reflexes and fields were normal. Although there was 4 mm. of proptosis in the right eye, no abnormal mass could be palpated within the orbit. The extraocular muscular functions were normal. Examination of the fundi revealed structurally full disks of good color and definition. The retinal veins were relatively full. Examination of the ears, nose and throat revealed a slight retraction of both ear drums and slight conduction deafness on the right side. The pharynx was injected and the tonsils were red. There was a scar on the right side of the nose and there was a firm nonulcerating mass appearing in the right middle meatus. Roentgenologic examination of the skull and accessory sinuses revealed a large soft tissue mass in the frontal sinuses and extending down into the frontoethmoid region. There were decalcification and posterior expansion of the posterior wall of the frontal sinuses. These findings suggested a benign tumor, probably a large mucocele. The tissue removed elsewhere was available for examination. Our pathologist reported that it was a dural endothelioma containing numerous psammoma bodies.

Fig. 15 (case 17).—Appearance eleven days after transcranial removal of meningioma from right orbit, right frontal sinus and nose. Note scar in right eyebrow of previous external frontal operation performed elsewhere.

Fig. 16 (case 21).—Boy aged 3 years who had had increasing prominence of left eye for three weeks.

In view of the physical findings and the report of a tumor of the psammoma type having been found in the nose before the patient came to the clinic, we made a diagnosis of an intracranial meningioma with intraorbital and intranasal exten-

8. Love, J. G., and Kernohan, J. W.: Dermoid and Epidermoid Tumors (Cholesteatomas) of Central Nervous System, J. A. M. A. **107**: 1876-1882 (Dec. 5) 1936.

sion and advised right transfrontal craniotomy for removal of the tumor. When the bone flap had been elevated and the dura mater was being elevated from the roof of the orbit, it was noted that the roof of the right orbit bulged within the cranium and was parchment thin in some areas and completely destroyed in other areas. The nasal half of the roof of the orbit was most involved. With a punch, a gallbladder scoop

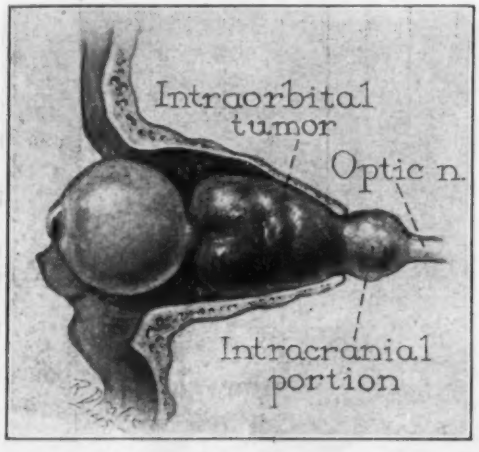

Fig. 17 (case 21).—Astrocytoma of left optic nerve, showing intracranial extension, which could be removed only by means of a transcranial approach.

and pituitary forceps, a large amount of tumor was easily removed. When the tumor within the orbit was removed, a large amount of tumor could be seen in the frontal sinus and downward into the nose. As the tumor was being removed, pus was encountered in the mesial half of the orbit. About ½ teaspoon (2 cc.) of pus was removed. A culture of the pus was taken and the wound was swabbed thoroughly with tincture of merthiolate. All of the tumor grossly was removed. It was not necessary to open the dura mater at any time. This, we considered, was very fortunate in view of the finding of pus at the operative site. A Penrose cigaret drain was left within the cavity from which the tumor had been removed and was brought out of the incision laterally. The incision was closed in layers in the usual fashion. The tumor was reported by the pathologist as being a meningioma with psammoma bodies. Subsequent report on the culture of pus taken at the time of operation showed no growth of organisms. The patient's convalescence was entirely uneventful. He was dismissed from the hospital on the eighth postoperative day, at which time his wound was well healed. He was allowed to return home on the twelfth day after operation (fig. 15).

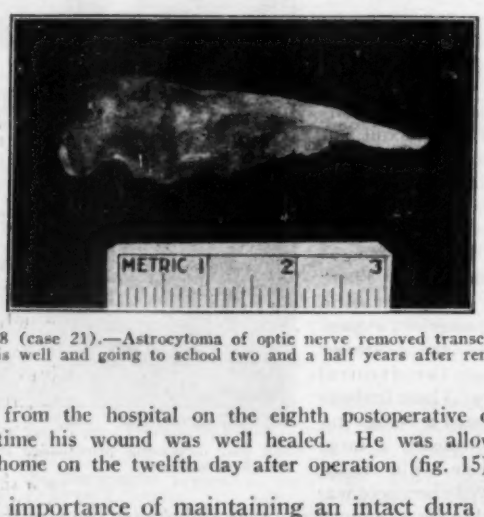

Fig. 18 (case 21).—Astrocytoma of optic nerve removed transcranially. Patient is well and going to school two and a half years after removal of tumor.

The importance of maintaining an intact dura mater when removing intraorbital tumors transcranially is emphasized by case 17, since the pus was found within the tumor and because it was necessary to enter the frontal sinus and the nose (a potentially infected region) in order to effect a complete removal of this tumor.

Case 21.—A boy aged 3 years was referred to the clinic because of increasing prominence of the left eye, which had been noted only three weeks prior to registration. Aside from the proptosis, the child was entirely asymptomatic.

Examination revealed 2 mm. of proptosis of the left eye (fig. 16). The pupils were equal and reacted normally to light. There was edema of the right optic disk of 1 to 2 diopters and of the left disk of 5 diopters.[9] Roentgenologic examination of the head gave negative results. Left transfrontal craniotomy for a tumor of the left optic nerve was advised and carried out. The roof of the left orbit was very thin, particularly posteriorly toward the apex and over the optic foramen. The periorbita was not discolored and it was impossible to feel the tumor with a finger. The dura mater was incised along the lesser wing of the sphenoid bone in order to expose both optic nerves and the chiasm. When the frontal lobe was elevated from the chiasm, a tumor of the left optic nerve was detected. About 4 to 6 mm. of the tumor could be seen within the cranium; that is, proximal to the left optic foramen. When this mass was traced into the orbit the bulk of the tumor was found to be intraorbital. The optic nerve was silver clipped just distal to the chiasm where it appeared normal, and then the nerve and tumor mass were freed up to the globe. A silver clip was placed snugly against the sclera and the nerve was divided proximal to the silver clip; that is, toward the chiasm. The ophthalmic artery was not identified as such but there was a band of tissue, which was very dense and still held the tumor in place. This was silver clipped and divided, whereupon the entire tumor with a portion of the optic nerve, which appeared normal, was lifted from its bed (fig. 17). There was no bleeding. The incision was closed in the usual manner without drainage. The tumor was reported by the pathologist as being 3 cm. in length, the diameter being 8 mm. at one end, 12 mm. at the other end and 3 cm. in the middle (fig. 18). Microscopically it was an atypical astrocytoma.

Fig. 19 (case 21).—Appearance of patient sixteen days after removal of astrocytoma of left optic nerve.

The patient's convalescence was uneventful. He was dismissed from the hospital on the eleventh postoperative day and from the care of the clinic on the seventeenth day after operation (fig. 19). At the time of the latest report, two and a half years after operation, he was attending kindergarten and "getting along fine" according to his mother.

SUMMARY

In a consecutive series of 35 cases of intraorbital tumors the transcranial approach through the roof of the orbit afforded excellent visualization of the pathologic growth and the important structures within the orbit and permitted removal of tumors which could not otherwise have been removed. There was only one death in the series, and the results generally have been good.

CONCLUSIONS

This paper further emphasizes the comment made by Adson and one of us (Benedict) [10] in their report of a case (case 1 of this paper) in which a hemangioendothelioma of the orbit was removed through a transcranial approach; namely, "The ease with which the hemangioendothelioma was removed suggests many possibilities for the transcranial approach to vascular and neoplastic lesions situated in the retrobulbar space of the orbit."

9. The edema of the right optic disk never was explained satisfactorily.
10. Adson, A. W., and Benedict, W. L.: Hemangioendothelioma of the Orbit; Removal Through Transcranial Approach, Arch. Ophth. **12**: 484-490 (Oct.) 1934.

PENICILLIN TREATMENT OF SCARLET FEVER

BACTERIOLOGIC STUDY OF THE NOSE AND THROAT OF PATIENTS TREATED INTRAMUSCULARLY OR BY SPRAY WITH PENICILLIN AND A COMPARISON WITH SULFADIAZINE

MANSON MEADS, M.D.

M. EUGENE FLIPSE JR., M.D.

MILDRED W. BARNES

AND

MAXWELL FINLAND, M.D.

WITH THE COLLABORATION OF RUTH DREW AND ALICE NORTHROP

BOSTON

Laboratory [1] and clinical [2] studies have shown that penicillin is highly effective against the hemolytic streptococcus. It is more active than sulfonamides in protecting mice against lethal infections with this organism.[3] There are also a number of reports of hemolytic streptococcic infections which resisted sulfonamide therapy but responded well to penicillin.[4] Such observations and the lack of toxicity of penicillin have made it the treatment of choice in severe hemolytic streptococcic infections.

Direct comparisons of sulfonamide and penicillin therapy in hemolytic streptococcic infections are included in the reports already mentioned. In addition, Plummer and his co-workers [5] found that hemolytic streptococci could no longer be found in the majority of throat cultures taken from patients with pharyngitis or tonsillitis after forty-eight hours or more of intramuscular treatment with 15,000 units of penicillin every four hours. The organisms frequently reappeared and symptoms relapsed, if the treatment was carried out for less than six days. Sulfadiazine, on the other hand, reduced the number of organisms in the cultures while the treatment was being given, but they were again found in large numbers after that treatment was stopped. Similar findings with respect to sulfadiazine were also noted by others.[6]

In this paper are reported the results of bacteriologic studies of four similar but small groups of cases of scarlet fever treated: (A) without sulfonamides or antibiotics, (B) with penicillin intramuscularly, (C) with sulfadiazine orally and (D) by spraying the nose and throat with penicillin solution. There were only 9 patients in each group, but the differences observed were sufficiently striking to warrant this report.

PATIENTS, MATERIALS AND METHODS

The patients studied were admitted to the South Department [7] of the Boston City Hospital between January and May 1945. They all had the typical clinical picture of scarlet fever without septic complications; none had received any form of specific therapy before entry and all were old enough to cooperate with the methods of treatment and study. They were divided more or less in rotation. Although it was hoped to obtain groups which were of equal severity and comparable in other respects, the group treated with intramuscular penicillin included more patients who were moderately or severely ill and also more of the older children. The distribution of cases according to age, duration of symptoms and rash at the time of entry and the number who previously had tonsillectomy are listed in the accompanying table.

Certain Relevant Data in Cases Studied

Group	A	B	C	D
Number of cases	9	9	9	9
Ages (years):				
4 to 6	2	1	6	2
7 to 11	6	4	3	4
12 to 15	1	4	0	3
Duration at entry:				
(a) Symptoms				
Less than 1 day	3	1	0	1
1 to 3 days	6	8	8	7
4 to 7 days	1	0	1	1
(b) Rash				
Less than 1 day	3	2	3	4
1 day	6	7	5	4
2 days	0	0	1	1
Severity at entry:				
Mild	6	1	5	5
Moderate	2	6	4	4
Severe	1	2	1	0
Catarrhal otitis media	2	1	2	3
Previous tonsillectomy	3	2	1	4

The treatment employed was as follows: Group A, no sulfonamides or penicillin. One patient, A1, was given 70 cc. of scarlet fever convalescent serum on the second day because of pronounced toxicity. Group B, 10,000 units of penicillin intramuscularly every three hours, except B5, who weighed more than 100 pounds (45.4 Kg.) and was given doses of 15,000 units. Group C, sulfadiazine 0.06 Gm. per pound per day, given in six doses plus an initial dose which was two thirds of the daily dose. Group D, a solution containing 1,000 units of penicillin per cubic centimeter in isotonic solution of sodium chloride and five sprays from a De Vilbiss atomizer given into each nostril and a similar number into the posterior pharynx.—Patients D1 and D2 received this treatment only four times a day, shortly after each meal and at bed time, a total of 100,000 units

From the South Department, Thorndike Memorial Laboratory and Second and Fourth Medical Services (Harvard), Boston City Hospital and the Departments of Medicine and Bacteriology and Immunology, Harvard Medical School.

1. Fleming, Alexander: On the Antibacterial Action of Cultures of a Penicillium, with Special Reference to Their Use in the Isolation of B. Influenzae, Brit. J. Exper. Path. **10**: 226 (June) 1929. Abraham, E. P.; Florey, H. W.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G., and Jennings, M. A.: Further Observations on Penicillin, Lancet **2**: 177 (Aug. 16) 1941. Florey, H. W., and Jennings, M. A.: Some Biological Properties of Highly Purified Penicillin, Brit. J. Exper Path. **23**: 120 (June) 1942. Dawson, M. H.; Hobby, G. L.; Meyer, K., and Chaffee, E.: Penicillin as a Chemotherapeutic Agent, Ann. Int. Med. **19**: 707 (Nov.) 1943. Watson, R. F.: Sensitivity of Various Serological (Lancefield) Groups of Streptococci to Penicillin, Proc. Soc. Exper. Biol. & Med. **57**: 65 (Oct.) 1944. Meads, Ory, Wilcox and Finland.[12]

2. Keefer, C. S.; Blake, F. G.; Marshall, E. K., Jr.; Lockwood, J. S., and Wood, W. B., Jr.: Penicillin in the Treatment of Infections: A Report of 500 Cases, J. A. M. A. **122**: 217 (Aug. 28) 1943. Dawson, M. H., and Hobby, G. L.: The Clinical Use of Penicillin: Observations in 100 Cases, ibid. **124**: 611 (March 4) 1944. Lockwood, J. S.; White, W. L., and Murphy, F. D.: The Use of Penicillin in Surgical Infections, Ann. Surg. **120**: 311 (Sept.) 1944. Meleney, F. L.: Recent Experiences with Penicillin in the Treatment of Surgical Infections, Bull. New York Acad. Med. **20**: 517 (Oct.) 1944. Spink, W. W., and Hall, W. H.: Penicillin Therapy at the University of Minnesota Hospitals: 1942-1944, Ann. Int. Med. **22**: 510 (April) 1945. Lyons.[4]

3. Hobby, G. L.; Meyer, K., and Chaffee, E.: Chemotherapeutic Activity of Penicillin, Proc. Soc. Exper. Biol. & Med. **50**: 285 (June) 1942. Robinson, H. J.: Toxicity and Efficacy of Penicillin, J. Pharmacol. & Exper. Therap. **77**: 70 (Jan.) 1943.

4. Lyons, Champ: Penicillin Therapy of Surgical Infections in the U. S. Army, J. A. M. A. **123**: 1007 (Dec. 18) 1943. Hellman, A. M., and Guilfoil, E. F.: Treatment with Penicillin After the Failure of Sulfa Drugs in a Case of Vaginal Plastic Followed by Blood Stream Infection, Am. J. Obst. & Gynec. **47**: 125 (Jan.) 1944. Mitchell, R. M., and Kaminester, S.: Penicillin: Report of a Patient Who Recovered from Puerperal Sepsis Hemolytic Streptococcus Septicemia, Am. J. Surg. **63**: 136 (Jan.) 1944.

5. Plummer, Norman; Duerschner, D. R.; Warren, H. D.; Rogliano, F. T., and Sloan, R. A.: Penicillin Therapy in Hemolytic Streptococcic Pharyngitis and Tonsillitis, J. A. M. A. **127**: 369 (Feb. 17) 1945.

6. Rubenstein, A. D., and Foley, G. E.: The Effect of Chemotherapy on the Duration of the Carrier State Following Scarlet Fever, New England J. Med. **233**: 315 (Sept. 13) 1945. Commission on Acute Respiratory Diseases.[11a]

7. This study was made possible through the courtesy and cooperation of Dr. Edwin H. Place, physician-in-chief.

being given; the others in this group were sprayed every four hours day and night and each received a total of approximately 200,000 units. The treatment in groups B, C and D was begun within a few hours after entry and was continued for seven full days. All gargles and nose drops were eliminated from the routine supportive therapy in every case.

Cultures from the nose and throat were taken of every patient on admission, twenty-four hours after treatment was begun, two or three more times during the therapy and twice weekly thereafter until the day of discharge. A pair of cotton swabs was swept five or six times across the posterior pharynx and over each tonsillar fossa, and separate single swabs were rotated in each nostril. The nasal and pharyngeal swabs were streaked, soon after they were taken, on separate agar plates containing 10 per cent horse blood. Substreaks were made serially over each of the four quadrants of the plate in order to obtain a rough quantitation of numbers of colonies that developed. In group D about half of the cultures were taken between one and two hours after spraying, while the remainder were obtained less than one hour before the time of spraying.

After twenty-four hours' incubation, roughly quantitative estimations (0 to 4 +) were made of the growth of colonies of beta hemolytic streptococcus, Staphylococcus aureus, alpha hemolytic streptococcus, pneumococcus and Hemophilus hemolyticus. Identification was made from colony morphology and from stained smears.[8] Subcultures of beta hemolytic streptococci were further classified according to the Lancefield groups, and those of group A were typed by agglutination and the types or representative strains were checked by the precipitin method.[9] The hemolytic and plasma coagulating properties of strains of Staphylococcus aureus were noted. Pneumococci were typed by the Neufeld method. When transparent hemolytic colonies appeared in large numbers, ten such colonies were picked at random. Stained smears were examined, and if they all proved to be gram negative bacilli they were classified as Hemophilus hemolyticus and the remainder were assumed to be the same organism. The group A streptococci were all tested for sensitivity to penicillin by the method of Rammelkamp and Maxon.[10]

No special attempt was made to protect the patients from cross infections. Patients were admitted to open wards containing four or six beds each, with nurses each attending patients in more than one room. When they were allowed out of bed, the patients from the various rooms mixed freely and played together. Only those who developed other contagious diseases were isolated.

All of the cultures were made by the same observer, who made detailed clinical notations at the time. Routine blood and urine examinations were also done at frequent intervals.

RESULTS

Persistence of Hemolytic Streptococcus.—The results of the pharyngeal and nasal cultures in each of patients are shown graphically in charts 1 and 2, respectively. Only the findings with respect to hemolytic streptococci are shown in these charts.

Pharyngeal cultures were positive for hemolytic streptococcus on entry in all but 2 of the patients, and in both of them moderate numbers of these organisms were found in the cultures taken on the following day. All of the strains obtained from these original cultures were Lancefield group A strains: fifteen were type 2, four were type 4, three each were type 11 and type 22, two were type 10, there was one strain each of types 1, 17, 18, 19, 23 and 26, and one strain showed cross reactions with types 17, 19 and 23 antiserums. Two strains could not be classified with the available serums (types 1 to 30).

Nasal cultures taken on admission were positive for hemolytic streptococcus in only 11 patients, but 9 others had them in subsequent cultures taken during the first six days. Most of the latter were found on the day after entry. The types obtained from the nose corresponded to those found in the throat in every instance. The results of subsequent cultures varied widely in the four groups, each of which will therefore be considered separately.

Group A (no sulfonamide or penicillin). The pharyngeal cultures in this group showed minor fluctuations in the numbers of beta hemolytic streptococci, but the original strain was found in every instance. Persistently negative cultures were obtained before discharge in only 4 of the 9 patients in this group. The first negative culture in these 4 cases was obtained on the 15th, 19th, 28th and 29th days, respectively.

The nasal culture showed hemolytic streptococci on admission in only 1 patient in this group, but these organisms appeared in cultures of all the other 8 patients from one to nineteen days later. They were obtained intermittently in 2 cases and during a brief period only in 2 others. There were considerable fluctuations in the numbers of organisms found in the cultures obtained on different days in the same patients. The same type was isolated in each case from all of the nasal and pharyngeal cultures except in A4, in which type 1 was isolated from the nose after the first week, while type 2 was found in the throat.

Group B (intramuscular penicillin). The most striking effects of treatment were noted in this group. Throat cultures became and remained free of the original types of hemolytic streptococci after twenty-four hours in 1 case and in forty-eight hours in 6 others. In the 2 remaining patients the hemolytic streptococci persisted with temporary lapses until one week after the treatment was stopped. In 3 cases of this group hemolytic streptococci of types different from the original one appeared in the throat cultures near the end of the period of observation from one to five weeks after the penicillin treatment was stopped.

All the nasal cultures became or remained free of hemolytic streptococci throughout the period of treatment except in 1 case, in which they were recovered during the first two days. Strains of new types appeared in the nasal cultures of 2 patients and corresponded to those found in their throats at that time.

Group C (oral sulfadiazine). The results in this group were similar to those found in sulfonamide-treated cases of hemolytic streptococcic infections by others.[11] Hemolytic streptococci were reduced in num-

8. The cultural studies were carried out by Mildred W. Barnes.

9. The streptococcus grouping and typing was done by Ruth Drew and Alice Northrop in the Department of Bacteriology and Immunology of the Harvard Medical School as part of the studies of the Commission on Epidemic Surveys of the Board for the Investigation and Control of Epidemic Diseases in the Army, Preventive Medicine Service, Office of the Surgeon General, U. S. Army.

10. Rammelkamp, C. H., and Maxon, T.: Resistance of Staphylococcus Aureus to the Action of Penicillin, Proc. Soc. Exper. Biol. & Med. **51**: 386 (Dec.) 1942.

11. Julianelle, L. A., and Siegel, Morris: The Epidemiology of Acute Respiratory Infections Conditioned by Sulfonamides: II. Gross Alterations in the Nasopharyngeal Flora Associated with Treatment, Ann. Int. Med. **22**: 10 (Jan.) 1945. Watson, Rothbard and Swift.[3a] Plummer, Duerschner, Warren, Rogliano and Sloan.[3] Commission on Acute Respiratory Diseases.[17a] Rubenstein and Foley.[6]

ber or could not be found intermittently during the treatment. The original types of streptococci recurred or increased in the throat cultures obtained after the sulfadiazine was discontinued in 8 of these cases. Types differing from the original ones appeared toward the end of the period of observation in 4 patients, including the only one of this group in whom the original type could not be recovered after two days of treatment.

The results of the nasal cultures in this group were somewhat similar to those found in the control cases, except that the streptococci appeared for the first time during treatment less frequently in the present group. New types appeared in 3 of these cases, which in 2 instances corresponded to the new strains recovered from the throats in the same patients at about the same time.

GROUP D (penicillin spray). The results of the throat cultures in this group differed only slightly from those obtained in the controls. In only 1 case did the cultures remain free from hemolytic streptococci for more than one observation even during treatment. The nasal cultures, on the other hand, either became free from hemolytic streptococci after the second day or remained free from the pharyngeal strain throughout the treatment period. After the penicillin spray was discontinued, however, the original pharyngeal strains appeared in almost pure culture in 6 of the cases. A new type appeared at the end of the observation period in 1 of the 2 patients whose nasal cultures had remained free from streptococci.

Sensitivity to Penicillin.—All of the strains of beta hemolytic streptococci isolated from each of the four groups of cases, both before and after the treatment period, were tested and found to be highly sensitive to penicillin. They all were either similar in sensitivity to the control strain of streptococcus number 98 or showed at most a twofold difference. None of the strains of the same or of new types isolated after the treatment period differed in sensitivity from the original strains isolated from the same patients at the time of admission.

OTHER ORGANISMS

Although this study was designed primarily for the purpose of evaluating the bacteriologic effects of the various therapies on the hemolytic streptococcus, a summary of the findings with respect to some of the other organisms is of interest.

Staphylococcus aureus occurred in throat cultures in only a few of the patients. Even in these it was found only in small numbers, and none of the strains showed hemolysis of the horse blood. About half of them were coagulase positive. Interestingly enough, none were found throughout the treatment period in patients who received penicillin intramuscularly, although they occurred in later cultures from 4 of these patients. Only 2 of those treated with penicillin spray had staphylococci on one or two occasions during treatment.

The nasal cultures, on the other hand, often showed large numbers and almost pure cultures of staphylococci, almost all of which were coagulase positive and many showed hemolysis of the horse blood. They were present throughout the treatment period in varying numbers both in the controls and in the sulfadiazine treated cases, but they rapidly disappeared or persisted in small numbers in the nasal cultures in both of the penicillin treated groups. After the treatment period, however, they were present in large numbers in 4 of the control patients and in almost all of those treated with intramuscular penicillin or with sulfadiazine. Only small numbers were found during the third week or later in 3 of those who had received penicillin by spray.

Pneumococci of specific serologic types were found sporadically during the treatment period in the nose and throat of 1 patient and only in the nose of 5 others. Of these 6 patients there were 2 each in groups A and C and 1 in each of the penicillin treated groups. Pneumococci appeared for the first time and in small numbers after the treatment was ended in 2 of those in group B.

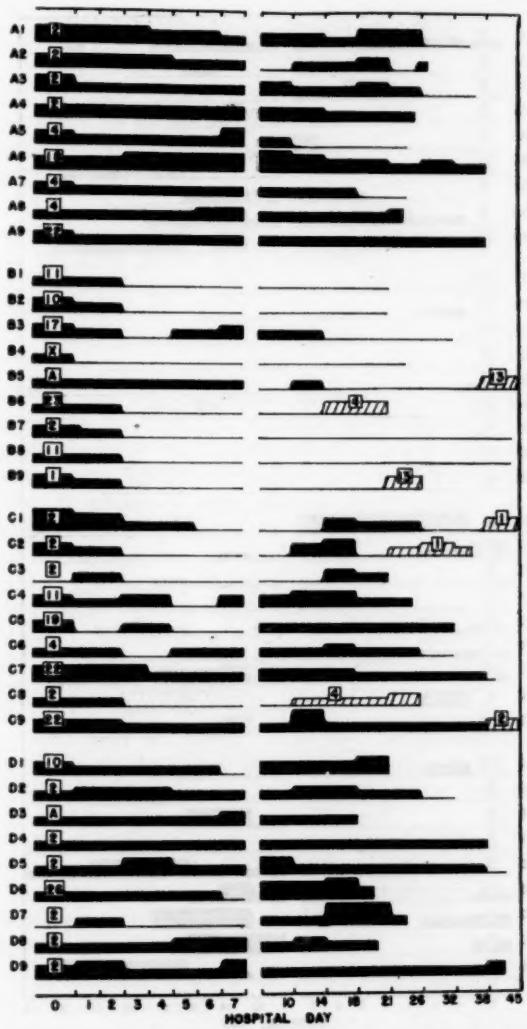

Chart 1.—Hemolytic streptococci in pharyngeal cultures. The case numbers are given on the extreme left: A1-9 received no penicillin and no sulfonamides; B1-9 received intramuscular penicillin for seven days; C1-9 received sulfadiazine orally for seven days and D1-9 received a spray of penicillin solution for seven days. The numbers in the squares above hospital day 0 indicate the type of hemolytic streptococcus originally found in the throat. *X* = cross reaction with types 17, 19 and 23 antiserums; *A* = no reaction with available antiserum (types 1-30). The length of each line indicates the period of observation. The height of the solid bar is intended to convey a rough quantitation of the number of hemolytic streptococci of the original type and the cross hatched bar indicates the numbers of streptococci of new types which appeared later and are designated by the numerals.

Alpha hemolytic streptococci were found in moderate or large numbers in throat cultures throughout most of the period of observation in almost all of the cases. In most of those treated with penicillin, either intramuscularly or by spray, they disappeared from the cultures during the last two or three days of treatment, only to reappear later in larger numbers. Hemophilus hemolyticus, which is somewhat similar to the staphylococcus

in its susceptibility to penicillin,[12] appeared only sporadically in the nose and throat cultures. Interestingly enough, this organism occurred in moderate numbers during the treatment period in 5 of those who received penicillin intramuscularly and in 1 who received it by spray. It was not recovered from any of the cultures in the sulfadiazine treated cases.

CLINICAL RESULTS

The clinical results need only to be mentioned briefly, since the numbers of cases were too few to permit any definite comparisons or conclusions. The average duration of fever, rash and acute toxicity was essentially

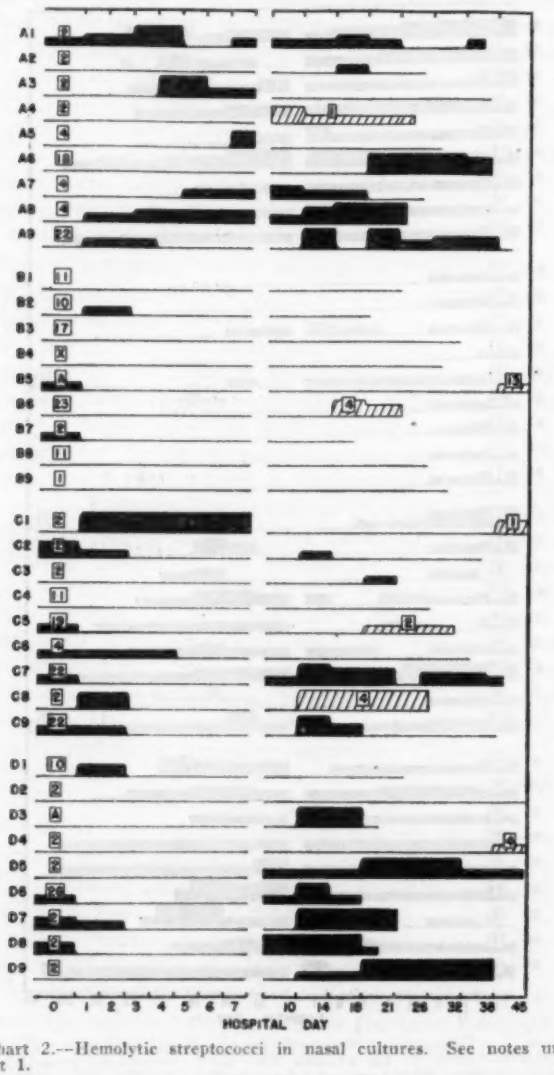

Chart 2.—Hemolytic streptococci in nasal cultures. See notes under chart 1.

the same in all four groups. Sore throat disappeared rapidly and did not recur in the cases treated with intramuscular penicillin, whereas symptoms and signs of pharyngitis persisted in some of those in each of the other groups. Septic complications did not occur in any of the former, whereas rhinitis, catarrhal otitis media and nonsuppurative cervical adenitis each developed in 1 to 4 patients of group A, C and D, and 1 of those in group A and in group C developed a paronychia. The average hospital stay in the cases treated with intramuscular penicillin was twenty-nine days, as compared with thirty-seven days for all of the other groups. This average would have been even shorter in group B were it not for the regulations which required all scarlet fever patients to be kept for a minimum of twenty-one days. In addition, 1 of the patients in group B was kept in the hospital for five weeks longer in an attempt to cure a chronic otitis media from which only Proteus vulgaris but no hemolytic streptococci was cultured. These findings only corroborate the general clinical impression of a more complete and rapid clinical cure in the cases treated with intramuscular penicillin.

COMMENT

The most striking result of the present study is the demonstration that penicillin given in therapeutic doses intramuscularly is effective in rapidly eliminating hemolytic streptococci from the nose and throat of patients with scarlet fever. When given by spray alone, in the manner used in this study, a concentrated solution of penicillin, like tyrothrycin,[13] was not effective except possibly in suppressing these organisms in the nose temporarily. Some workers, however, have reported favorable results with local applications of penicillin in the nose and throat in clearing diphtheria carriers.[14] When the intramuscular penicillin treatment was continued for seven days, the original strains of streptococci did not return in the nose and throat after the treatment was stopped. Plummer and his associates[5] observed a similar effect in cases of streptococcic pharyngitis and tonsillitis. They noted that when penicillin was discontinued the hemolytic streptococci tended to return gradually in the nasopharyngeal cultures, and the frequency of their reappearance was inversely proportional to the length of time the penicillin was administered. Clinical relapses in their cases also occurred if the treatment was carried out for less than six days, and 1 of their patients developed streptococcic sinusitis and pneumonia later, after treatment for six days. In small groups of cases of rheumatic fever treated with intravenous or intramuscular penicillin for longer periods and with larger doses, hemolytic streptococci could not be found in nasopharyngeal cultures after the treatment was started.[15] In similar cases treated for shorter periods, the streptococci often recurred after the treatment was stopped.[16]

The experiences with the use of sulfadiazine given orally in full therapeutic doses for seven days were similar to those reported by others in cases of simple pharyngitis.[17] In a recent study of an explosive outbreak of hemolytic streptococcic sore throats in which alternate patients received full doses of sulfadiazine for five days, the percentage of positive cultures for hemolytic streptococci during the time of treatment was about one half of that among the controls that were treated only symptomatically. After sulfadiazine was discontinued, the percentage of positive cultures among the treated and control cases was practically identical.[17a]

12. Meads, M.; Ory, E. M.; Wilcox, C., and Finland, M.: Penicillin Sensitivity of Strains of Six Common Pathogens and of Hemophilus Hemolyticus J. Lab. & Clin. Med. **30**: 725 (Sept.) 1945.

13. Hartley, G., Jr.; Enders, J. F.; Mueller, J. H., and Schoenback, E. B.: Absence of Clinical Disease in Spite of High Incidence of Group A Hemolytic Streptococci of a Single Type: Failure of Tyrothrycin to Influence the Carrier Rate, J. Clin. Investigation **24**: 92 (Jan.) 1945.

14. Berman, B. B., and Spitz, S. H.: Treatment of Diphtheria Carriers with Penicillin, Bull. U. S. Army M. Dept., July 1945, No. 87, p. 4.

15. Watson, R. F.; Rothbard, Sidney, and Swift, H. F.: The Use of Penicillin in Rheumatic Fever, J. A. M. A. **126**: 274 (Sept. 30) 1944. Rantz, L. A.; Spink, W. W.; Boivert, P., and Coggeshall, H.: The Treatment of Rheumatic Fever with Penicillin, J. Pediat. **26**: 576 (June) 1944. Foster, McEachern, Miller, Ball, Higley and Warren.[16]

16. Foster, F. P.; McEachern, G. C.; Miller, J. G.; Ball, F. E.; Higley, C. S., and Warren, H. A.: The Treatment of Acute Rheumatic Fever with Penicillin, J. A. M. A. **126**: 281 (Sept. 30) 1944.

17. Plummer, Duerschner, Warren, Rogliano and Sloan.[5] Watson, Rothbard and Swift.[15] Julianelle and Siegel.[11]

17a. Commission on Acute Respiratory Diseases: Personal Communication to the authors.

The clinical results also suggest that penicillin given intramuscularly during and for several days after the eruptive stage may minimize or even eliminate the late septic complications. The majority of these complications occur after the second week of illness and have been shown by some workers to be due to organisms acquired by cross infection.[18] These should be preventable by adequately treating all of the patients and thus eliminating the sources of cross infections. Furthermore, should these findings be corroborated on a large scale, the present requirement of isolation for scarlet fever patients for three or four weeks would become unnecessary, and patients could be discharged after eight or ten days without danger of giving rise to secondary cases or of cases returning with complications. Such a reduction in the period of hospitalization and the elimination of the case-carriers in military installations might well justify the longer period of intensive treatment even in cases of simple pharyngitis and tonsillitis in which treatment for more than one or two days might otherwise seem superfluous.

Further developments in penicillin therapy may simplify the administration of such a program. Thus the use of penicillin X may result in the reduction in the frequency with which the doses are to be given.[19] It may also be possible to give some of the treatment orally [20] or in lozenges.[21]

Penicillin had little or no effect on the strictly toxic or eruptive phase of the disease. In this respect it was similar to sulfonamides.[22]

CONCLUSIONS

In patients with scarlet fever treated with penicillin intramuscularly, hemolytic streptococci disappear from the nasal and pharyngeal cultures within forty-eight hours, and if the treatment is continued for seven days the original types of streptococci do not reappear.

Penicillin solution given to similar patients by spraying the nose and throat four to six times a day has very little effect on the hemolytic streptococci in the pharynx but seems to keep the nose free from these organisms while the treatment is being continued.

In similar cases sulfadiazine given orally in full doses for seven days results in a suppression in the numbers of hemolytic streptococci in cultures obtained during the period of treatment only. In this respect the results were comparable to those obtained by others in cases of hemolytic streptococcic pharyngitis and tonsillitis.

The clinical and bacteriologic results suggest that early systemic treatment with penicillin in adequate doses continued for seven days may eliminate the hemolytic streptococcus carrier state and prevent complications due to this organism. The eruption and toxic manifestations of scarlet fever are not influenced by penicillin.

It should be emphasized that these conclusions are based on a very small number of cases and therefore are only tentative. They require corroboration and elaboration in a larger number of cases of various kinds of hemolytic streptococcic infections.

18. Allison, V. D., and Brown, W. A.: Reinfection as a Cause of Complications and Relapses in Scarlet Fever Wards, J. Hyg. **37:** 153 (April) 1937. DeWaal, H. L.: The Serological Types of Hemolytic Streptococcus in Relation to the Epidemiology of Scarlet Fever and Its Complications, ibid. **40:** 172 (March) 1940.

19. Welch, Henry; Putnam, L. E.; Randall, W. A., and Herwick, R. P.: Penicillin X: Successful Treatment of Gonorrhea with a Single Intramuscular Injection, J. A. M. A. **126:** 1024 (Dec. 16) 1944. Ory, E. M.; Meads, M., and Finland, M.: Penicillin X: Comparison with Penicillin G with Respect to Sensitivity of Pathogenic Organisms and Serum Levels, J. A. M. A. **129:** 257 (Sept. 22) 1945.

20. McDermott, Walsh; Bunn, P. A.; Benoit, Maria; Dubois, Rebeckah, and Haynes, Willetta: Oral Penicillin, Science **101:** 228 (March 2) 1945. György, Paul; Vandegrift, H. N.; Elias, William; Colio, L. G.; Berry, F. M., and Pilcher, J. I.: Administration of Penicillin by Mouth, J. A. M. A. **127:** 639 (March 17) 1945. Finland, M.; Meads, M., and Ory, E. M.: Oral Penicillin, ibid. **129:** 315 (Sept. 29) 1945.

21. MacGregor, A. B., and Long, D. A.: Use of Penicillin Pastilles in Oral Infections, Brit. M. J. **2:** 686 (March 25) 1944.

22. Wesselhoeft, Conrad, and Smith, E. C.: The Use of Sulfanilamide in Scarlet Fever, New England J. Med. **219:** 947 (Dec. 15) 1938. French, Jane O.: The Sulfanilamide Treatment of Scarlet Fever, J. Hyg. **39:** 581 (Sept.) 1939. Fox, M. J., and Gordon, N. F.: Treatment of Scarlet Fever, Arch. Int. Med. **74:** 1 (July) 1944. Wesselhoeft, Conrad, and Weinstein, Louis: Scarlet Fever, New England J. Med. **232:** 500 (May 3) 1945.

INTRAVENOUS ANESTHESIA FOR ORTHOPEDIC SURGERY

GEORGE J. THOMAS, M.D.
PITTSBURGH

In the past decade intravenous anesthesia has shown a definite and consistent increase in its application and use. I feel that this form of anesthesia has a definite place in orthopedic surgery for the following reasons:

1. The technic of administration is simple.
2. The induction period is short and pleasant.
3. The usual psychic shock is absent.
4. The depth of narcosis is controllable and sufficient for any orthopedic procedure.
5. It may be repeated without danger of becoming habit forming.

I am not attempting to advocate intravenous anesthesia for all types of orthopedic patients. I wish to emphasize that the contraindications for the use of the intravenous agents must be observed. Children under 7 or 8 years of age, unless very robust, are poor subjects. Apart from their natural fear and small veins, the inertia of the air and their narrow air passages hinder gaseous exchanges and create an undesirable situation in view of their relatively high oxygen requirements. Such patients do very well under tribromoethanol and ether anesthesia, since tribromoethanol prevents psychic shock, which children frequently show during the induction period.

Victims of accidents involving the extremities, who are in shock, do better with nerve block. If intravenous anesthesia is to be used, shock must be treated first, followed by anesthesia and surgery.

THE AGENT OF CHOICE

Among several intravenous anesthetics studied I found pentothal sodium to have the following advantages over other agents:

1. It is equally, if not more, powerful and rapid in action.
2. Twitching is rare.
3. Postanesthetic nausea and vomiting are less frequent.
4. Relaxation is more satisfactory.
5. Recovery is more rapid.

OPERATIONS ON PATIENTS IN PRONE POSITION

Intubation anesthesia is more suitable for patients who are in the prone position or any other position that hinders respiratory movements, or positions that are difficult in controlling the airway.

Preintubation Treatment.—Laryngeal irritability is increased under pentothal anesthesia. Coughing or vicious laryngospasm may occur during intubation. This, if persistent, will cause alarming cyanosis and cardiac embarrassment. This may be avoided by spraying the mouth and throat with 2 per cent pontocaine

Paper published under the auspices of the Section on Anesthesiology. From the Department of Anesthesiology, University of Pittsburgh School of Medicine, and St. Francis Hospital.

or 4 per cent cocaine immediately on the patient's arrival in the operating room. The spraying is repeated before starting the intravenous administration of pentothal. The intubation is completed while the patient is in the usual position on the carriage. The patient is then transferred to the operating table in

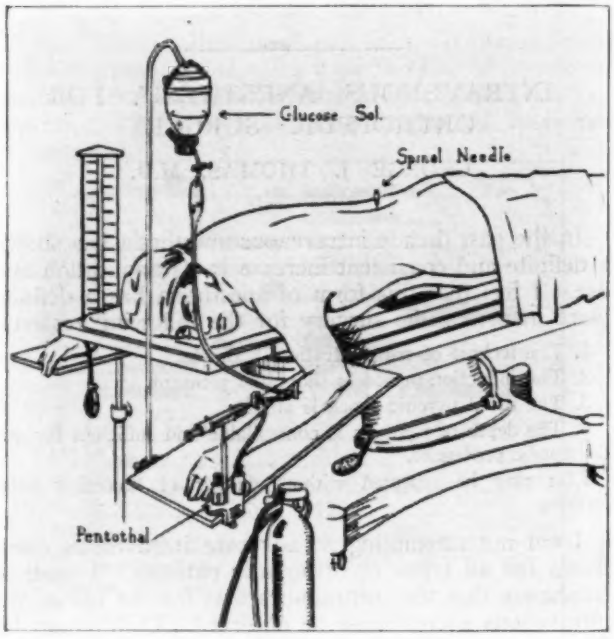

Fig. 1.—Anesthetic technic for patient in prone position.

a position suitable for surgery. The anesthesia is then continued with pentothal supplemented with equal parts of nitrous oxide and oxygen.

For operations below the twelfth dorsal vertebra I prefer to use a combination of spinal analgesia, pentothal, nitrous oxide and oxygen. The spinal tap provides analgesia to the area, the pentothal counteracts the toxic effect of procaine while the equal parts of nitrous oxide and oxygen provide a good tidal exchange. This technic is illustrated by figure 1. The patient is placed in a prone position on the operating table over the kidney elevator to facilitate the surgical procedure. The venipuncture for pentothal anesthesia is performed in the most accessible vein before the spinal tap is made. The subarachnoid tap can be made quite easily in this position without turning the patient on his side.

I have used spinal analgesia following the injection of lipiodol without any harmful reaction. I have not attempted spinal analgesia on patients who have had pantopaque.

TECHNIC FOR THE ADMINISTRATION OF PENTOTHAL SODIUM ANESTHESIA

Preoperative Medication.—Sufficient and proper preoperative medication is absolutely essential for a smooth pentothal anesthesia. Opiates are used, with special emphasis placed on the necessity for atropine. These preoperative agents control the parasympathetic hyperactivity and inhibit salivary and mucous secretions, thereby greatly reducing the incidence of complications such as coughing, sneezing and laryngospasm. The preoperative medication should be administered hypodermically thirty to forty-five minutes before the anesthetic.

Administration of Pentothal.—The dose cannot be accurately judged by the patient's weight, age, sex or metabolic state. The dose must be adjusted to each individual patient. In order to obtain the proper depth of narcosis for the particular type of operation, one must resort to the intermittent technic in the administration of this agent. In our institutions this technic is made possible with the use of an inexpensive apparatus. This consists of a small stand that can be clamped on an arm board. The base supports a reservoir for the pentothal solution, and an adjustable bracket attached to the stand holds a syringe. A two way stopcock is attached to the syringe, to each outlet of which is connected ordinary Dakin tubing 8 inches in length. One tube leads to the reservoir and the other to the arm. To the latter is attached a glass observation tube and a needle (fig. 2). Such equipment makes it possible to refill the syringe when necessary and to continue the intermittent technic indefinitely.

The operating field is prepared and draped. Venipuncture is performed after the skin has been surgically prepared. Three cc. of a 4 per cent solution of pentothal sodium is injected during a period of ten seconds. Because relaxation comes on more slowly than unconsciousness, it is very important that a pause of five seconds follow the injection of each 2 or 3 cc. of the agent. An additional 2 or 3 cc. is injected at the same rate as in the beginning, followed by another pause of five seconds. This procedure is continued until the desired relaxation is obtained. The air passage must be patent. Oxygen must be administered with a gas machine, with a nasal adapter or with a whistle-tip rubber catheter inserted to a distance of 5 inches through the nose and into the pharynx.

It must be remembered that, since the agent is given intermittently, the effect following the administration of each successive dose is increased. The pause between injections is highly important because the accumulated effect of the drug may come on very suddenly. Evidence of recovery is an indication that an additional 2 cc. or more of the solution is necessary. Caution regarding the speed of injection cannot be overempha-

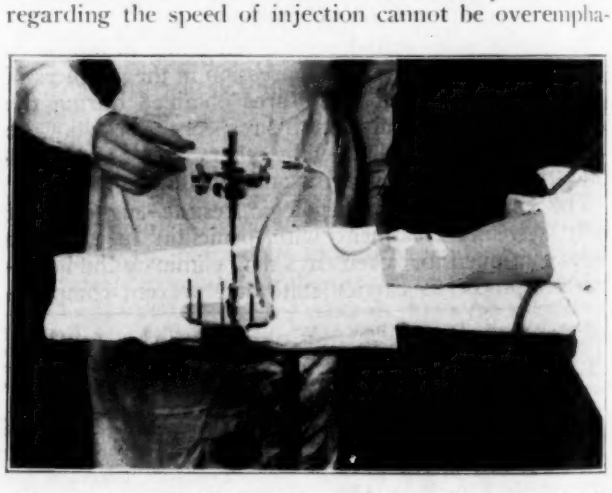

Fig. 2.—Apparatus used in the intermittent technic of administering pentothal sodium.

sized. As in all types of anesthesia, the body has no active mechanism of defense against overdosage.

Intravenous anesthesia should never be started unless there is oxygen available, either alone or on a gas machine.

In surgery requiring more than thirty minutes I have successfully used the so-called "double setup"

(fig. 3). The supplemental solution, either glucose, isotonic solution of sodium chloride, plasma or blood, is given continuously, while the pentothal is administered intermittently when needed. This has been made possible by the use of a "manifold." The supplemental solution passes continuously through one limb of the

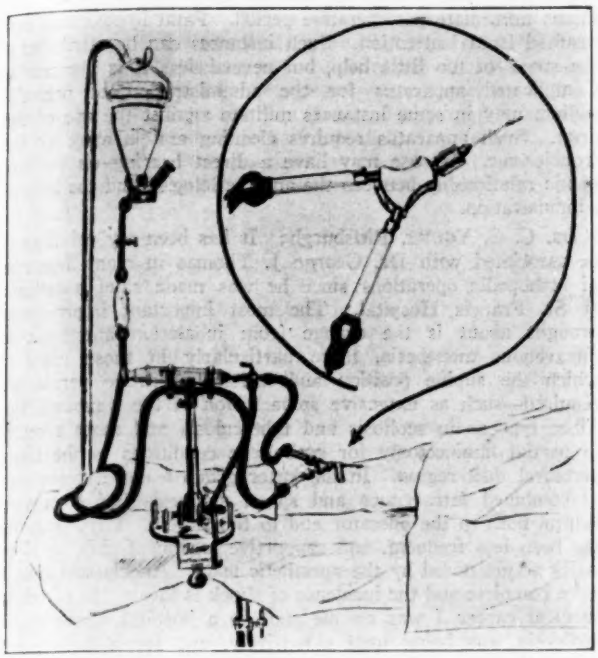

Fig. 3.—"Double setup" apparatus for administering the supplemental solution and pentothal.

manifold and the pentothal through the opposite limb. The male adapter of the manifold is attached to an intravenous needle. The supplemental solution flushes the needle, thereby preventing coagulation of the blood. The supplemental solution is desirable as a stimulant and as a restorative agent. This makes it possible to administer intravenous anesthesia in prolonged surgical procedures.

COMPLICATIONS AND THEIR MANAGEMENT

Complications with pentothal anesthesia are rare. However, some occur and should be handled without serious results. The most common is respiratory depression. The amplitude of the respiration rather than the rate is affected. It was found that oxygen administered through a mask or a catheter is frequently sufficient to stimulate the respiration. However, occasionally it is found necessary to administer nitrous oxide and nitrogen, in the meantime reducing the amount of pentothal. This technic has become quite popular with our staff.

Other complications which may occur either in deep or in light anesthesia are coughing, laryngospasm and hiccups. These may cause alarming cyanosis and perhaps cardiac embarrassment, if persistent. Such complications are undoubtedly due to parasympathetic hyperactivity. Should they occur under anesthesia, we aspirate the mucus or other material in the pharynx, deepen the anesthesia and immediately administer nitrous oxide and oxygen under pressure.

Trismus is another complication. This is undoubtedly a result of parasympathetic hyperactivity that can be controlled with atropine. Should this occur during anesthesia, a nasopharyngeal tube should be immediately inserted and oxygen administered under pressure. Delay in this procedure may become serious.

Urticarial rash has appeared on three occasions in our series of cases. It occurred during the induction of the anesthetic and is an interpretation of idiosyncrasy of the patient to that drug. If pentobarbital sodium is given the night before operation, the patient will reveal this susceptibility and this type of anesthetic can be avoided. However, should the condition occur during anesthesia, the pentothal should be discontinued and 4 to 6 minims (0.25 to 0.37 cc.) of neosynephrine immediately administered intramuscularly. The anesthetic should then be continued with inhalation agents, preferably nitrous oxide or cyclopropane.

POSTANESTHETIC COMPLICATIONS AND THEIR MANAGEMENT

The most common postanesthetic complication is respiratory depression. For this reason all patients anesthetized with pentothal should have oxygen administered to them continuously after the operation until they have completely reacted. Furthermore, the entire nursing staff of all hospitals should be thoroughly trained in the proper management of patients receiving barbiturates. The nursing staff should be made to realize that the postoperative and postanesthetic care of patients is very important for uneventful recovery.

Postanesthetic opiates should be withheld, especially in the case of older patients, until the patient has completely reacted from the anesthetic.

If a patient has not reacted within two or three hours, it means that an overdosage of pentothal has been administered. In this case the patient should be treated in the following manner:

1. Keep the patient warm.
2. Administer oxygen continuously.
3. Aspirate the mucus from the throat frequently.
4. Give 3 cc. of metrazol intravenously. Repeat in five minutes if necessary. (Incidentally, I have found metrazol a very efficient denarcotizing agent as well as an excellent respiratory stimulant in sufficient dose.)
5. Give hypertonic sucrose intravenously for diuresis and dehydration of the brain and the lungs.
6. Give repeated small transfusions or plasma, which will be found to be helpful.

CONTRAINDICATIONS

Pentothal sodium should not be employed or recommended when there is a decided physiologic or mechanical interference with the respiratory function. Children under 7 or 8 years of age, unless very robust, are poor subjects. It is inadvisable to use this agent on patients suffering with respiratory embarrassment due to cardiac decompensation. I feel that pentothal is contraindicated in the presence of bronchiectasis, severe anemia and shock.

COMMENT

I have attempted to present a brief review on the technic of pentothal sodium for orthopedic surgery, with special attention to the complications and their management, and the contraindications. Pentothal is not a drug with which liberties may be taken. Special care should be exercised in maintaining an efficient airway at all times. A gas machine should always be on hand and ready for use should respiratory depression or other complications present themselves. Finally, the drug should be administered by a thoroughly trained anesthetist who is competent to deal with any situation that may occur during the administration of this popular but potent agent.

4066 Penn Avenue.

ABSTRACT OF DISCUSSION

DR. AUSTIN LAMONT, Baltimore: As Dr. Thomas has suggested, orthopedic procedures in general offer no contraindications to the use of pentothal sodium for anesthesia. There is, in fact, ample justification for the opinion that the condition of the patient is the most important factor to be considered in choosing an anesthetic agent and method, assuming that the choice is to be made by an anesthetist skilled in the use of all the common agents and methods. Some will doubtless differ with Dr. Thomas in regard to certain of his statements, e. g. that the administration of pentothal is advisable to counteract the toxic effect of procaine injected into the subarachnoid space, that a pause of five seconds is a sufficient interval between repeated injections of 2 or 3 cc. of pentothal, that the complications of coughing, laryngospasm and hiccups should be treated partly by deepening the level of anesthesia which may already be deep, that hypertonic sucrose should be administered intravenously to patients who have received an overdose of pentothal and so on. Dr. Thomas wisely reiterates the warning that one cannot take liberties with pentothal without endangering the patient and that the safe and proper administration of pentothal requires a thoroughly trained anesthetist and efficient apparatus. When after an ordinary orthopedic or other superficial operation a patient does not react within two or three hours or indeed within fifteen or twenty minutes, it will usually be found that the pentothal was administered by an anesthetist relatively inexperienced with the agent. Most anesthetists in civilian practice who have occasion to use much pentothal have found that patients will rapidly recover from the narcosis if careful attention is paid to maintaining a level of anesthesia no deeper than necessary with as little pentothal as possible, an accomplishment which is facilitated by the continuous administration of nitrous oxide and oxygen in a ratio of about 60 to 40. It is interesting to speculate on Dr. Thomas's explanation of the fact that he has found oxygen to be a respiratory stimulant. For although there are excellent reasons for maintaining in the alveoli a high tension of oxygen throughout pentothal anesthesia, it is probable that oxygen could appear to act as a respiratory stimulant only when the respiratory center is so depressed by lack of oxygen that its integrity is dangerously impaired, a condition which should be strenuously avoided during anesthesia with pentothal or any other agent.

DR. JOHN H. HUTTON, Portland, Ore.: I don't know of any specialty to which the remark "each man to his own poison" is more applicable than to the field of anesthesiology. Some returning service anesthesiologists are enthusiastic about the use of pentothal sodium for a variety of operations in which they probably would not have employed it in civilian practice. Apparently the results obtained in the treatment of many serious battle casualties have justified their change of views. Dr. Thomas speaks of the use of tribromoethanol for children. Administration of this drug in the ward in basal doses, 80 to 90 mg. per kilogram of body weight, does much to offset psychic shock. In my experience supplemental administration of analgesic or light anesthetic mixtures of nitrous oxide-oxygen have resulted in adequate and smooth anesthesia. The method is further justified if fireproof conditions must prevail. In regard to orthopedic operation performed with the patient in the prone position, such as laminectomy or spinal fusion below the twelfth dorsal vertebra, in our service spinal anesthesia unsupplemented has become the method of choice. A mixture of 11 mg. of pontocaine and 55 mg. of procaine diluted to a total of 3 cc. with spinal fluid at the time of injection between the second and third lumbar vertebrae has proved satisfactory for the average patient. The injection is made with the patient lying on his right side. After the injection he is turned on his back for two minutes and then placed in the prone position, the table being kept level at all times. Supplemental anesthesia has only rarely been required for operations lasting less than two hours. Likewise a dose of 8 mg. of pontocaine and 40 mg. of procaine in the same dilution and site of injection has proved most satisfactory for the average patient requiring pin fixation or osteotomy of the hip. Dr. Thomas mentions the use of neosynephrine. It is an excellent drug for use during operations under spinal anesthesia. I have employed 3 minims intramuscularly for hypotension which is not due to shock and have been pleased with the quick elevating and sustaining effect on the blood pressure along with an improvement in tone and slowing of the pulse. One factor has been mentioned about pentothal sodium anesthesia that deserves even further emphasis. That is the importance of adequate nursing care in the immediate postoperative period. Fatal hypoxemias have resulted from inattention. Such instances can be attributed to the stress of too little help, but nevertheless it is inexcusable. Complicated apparatus for the administration of pentothal sodium may in some instances militate against the use of that drug. Such apparatus requires cleaning and is more or less troublesome. Its use may have a direct bearing on the economic relationship between the anesthesiologist and the hospital administration.

DR. C. C. YOUNT, Pittsburgh: It has been my privilege to be associated with Dr. George J. Thomas in many hundreds of orthopedic operations since he was made chief anesthetist at St. Francis Hospital. The most important improvement brought about is the change from inhalation anesthesia to intravenous anesthesia, more particularly in those cases in which the supine position and a long operative period are required—such as extensive spine fusion of the combined hip-Albee type as in scoliosis and tuberculosis and more recently in partial laminectomy for pathologic conditions in the intervertebral disk region. In the latter group a more recent plan of combined intravenous and spinal analgesia has been very helpful both to the operator and to the patient. Laryngospasm has been less frequent, and supportive treatment may be more easily administered by the anesthetic team. Anociassociation is more complete and the incidence of shock is lower. In my early surgical career I was on the staff in a hospital where spinal analgesia was being used extensively, and for a time I felt that spinal analgesia offered the best method in all operations below the umbilicus except in children. I now feel that there is a limited field for spinal analgesia exclusively, but a larger field for combined spinal analgesia with pentothal or other intravenous anesthetic agents. I have found the use of intravenous anesthesia especially useful in manipulations in adults requiring a rather short period of anesthesia and in children the inhalation of vinethene. Dr. Thomas has not mentioned local anesthesia, but I still prefer it in many minor operative procedures in orthopedic surgery, such as ingrown toenails, ganglion of tendons, biopsy of exposed bone tumors, some exostoses of bone, and in minor operations involving the digits. I have noted in recent years that the administration of anesthesia has become very diversified and considerable experience is necessary in selecting the proper anesthesia. I feel that this decision should be made after a brief review of each case with the anesthetist. If the surgeon has confidence in his chief anesthetist and his team, little concern and little attention to this feature of the operation need be given by the surgeon. The important position of the anesthetist on the operating room team should be more generally recognized both by medical personnel and by the public.

DR. MAYER S. DEROY, Pittsburgh: Intravenous anesthesia is used in a high percentage of cases in our orthopedic service. Its use is limited, however, to the discretion of the department of anesthesia, the judgment of the members of which is final, and whose consultation is expected in all cases. Combination with spinal or inhalation anesthesia is also a problem for that department. Pentothal is advantageous in short procedures, such as back manipulations and fracture reduction. The fact that many patients will request intravenous anesthesia from previous experience or from conversation with other patients emphasizes the ease of induction from the patients' point of view. With elimination of the stage of excitement or struggle there is less chance of loss of position of fracture fragments. The longer procedures, such as laminectomy, spine fusion and hip reconstruction, do well with combined spinal and intravenous anesthesia. The patient is placed in the desired position and then anesthesia is begun. We have had no difficulty in giving spinal anesthesia with the patient in the prone position but prefer to give the intravenous first, followed by the

spinal tap. Thus a minimal amount of pentothal is used and the patient has no recollection of the procedure. In comparing intravenous and inhalation anesthesia, we are impressed by the relative safety of pentothal. We have had no deaths in several thousand cases. We have had no fear of explosion from gases in using the electrocoagulation apparatus or the electric saw. Proper preoperative medication will minimize complications such as spasm of the larynx. Relaxation is rapid and complete. The lessened nausea and vomiting in these cases is advantageous when a body cast has been applied. We are impressed by the ease of administration of fluids, using the double setup, and take advantage of administering saline solution, glucose, plasma or even blood. The essential fact remains that our satisfactory use of intravenous anesthesia has been in hospitals which have anesthetists well trained in its use. It should be used only by experienced persons and when so given is of great value.

SICKLE CELL ANEMIA, "A GREAT MASQUERADER"

EASILY RECOGNIZABLE WITH ROUTINE USE OF DIAGNOSTIC PARAMETER

TRAVIS WINSOR, M.D.
AND
GEORGE E. BURCH, M.D.
NEW ORLEANS

Like syphilis, sickle cell anemia may present many clinical syndromes.[1] Some of these are easily recognizable, while others may imitate many disease states such as rheumatic fever, tuberculosis, Hodgkin's disease and acute surgical diseases of the abdomen, only to mention a few, to an extent that the differential diagnosis is learned only after proper hematologic study. Like syphilis, the disease may be so subtle as not to enter the mind of the clinician. Because of the fact that sickle cell anemia is such a great imitator and because it may remain so subtle, it is necessary, again as in syphilis, to study the blood routinely for sickle cell anemia in all Negro patients. In the past routine studies have not been done, as preparations of blood for sickling have offered certain difficulties.[2] A simple, rapid and accurate (the diagnostic parameter) method, described elsewhere,[3] offers itself for the routine study of all Negro patients for the existence of active sickle cell anemia. For the past twenty-four months this test has been applied routinely to all Negro patients entering a medical service of the Charity Hospital. As in the case of routine serologic examinations for syphilis, this has resulted in the unexpected discovery of many patients with sickle cell anemia as a primary or complicating disease. For example, a routine search for sickle cell anemia by means of the diagnostic parameter in 612 consecutive Negro patients admitted to this one medical service resulted in the finding of 27 cases (4.4 per cent) of active sickle cell anemia. This culminated in an early and correct diagnosis, though often unexpected, in many patients who ordinarily may have not been found to have this disease. Needless to say, many of these would have been erroneously treated and subjected to surgical procedures, well known to be dangerous and usually contraindicated and unnecessary in active sickle cell anemia.

From the Department of Medicine, Tulane University of Louisiana School of Medicine, and the Charity Hospital.

1. Wintrobe, M. M.: Clinical Hematology, Philadelphia, Lea & Febiger, 1942. Winsor and Burch.[4]
2. Diggs, L. W., and Pettit, V. P.: Comparison of Methods Used in Detection of Sickle Cell Trait, J. Lab. & Clin. Med. **26**: 1106-1111 (July) 1940.
3. Winsor, T., and Burch, G. E.: Diagnostic Physiochemical Blood Tests in Sickle Cell Anemia, Am. J. M. Sc. **207**: 152-160 (Feb.) 1944.

This report indicates the methods and results of the routine use of the diagnostic parameter in the management of Negro patients.

METHODS

Two methods may be employed in performing the test, one employing carbon dioxide (diagnostic parameter Δ_1) and the other venous stasis (diagnostic parameter Δ_2) to produce a retardation of the rate of erythrocyte sedimentation.[4] These methods are again described briefly:

Tourniquet Technic (Δ_2).—A sphygmomanometer cuff is wrapped round the brachium and inflated to a pressure between systolic and diastolic and allowed to remain in place for approximately six minutes. Ten cc. of venous blood (the collection of dark blue blood indicates adequate stasis) is withdrawn and placed in a 10 cc. vial containing oxylate or citrate crystals as anticoagulant. A Wintrobe sedimentation rate tube[5] is immediately filled, care being taken to prevent excessive loss of carbon dioxide, and the sedimentation rate determined. Approximately 3 cc. of the remaining blood is then transferred to a 50 cc. Ehrlenmeyer flask, which is rotated periodically at two minute intervals for fifteen minutes (adequate aeration or oxygenation is indicated by the bright red color) to facilitate the escape of carbon dioxide. A rate of sedimentation is then measured for the aerated sample. The diagnostic parameter Δ_2 is positive or indicative of sickle cell anemia when the difference between the sedimentation rates (uncorrected) of aerated and reduced blood is greater than 20 mm. per hour. If the diagnostic parameter is between 0 and 20 mm. per hour the chances are more than 10,000 to 1 that the patient does not have sickle cell anemia. If greater than 20 mm. per hour the chances are 98 in 100 that the patient has sickle cell anemia.[4]

TABLE 1.—*Effect of Anemia (Artificially Produced) on the Hematocrit Reading of Aerated Blood and of Blood Treated with High Concentrations of Carbon Dioxide*

Group	Diagnostic Parameter Δ_1 (Mm. per Hour)	Hematocrit per Cent (Aerated Blood)	$\frac{H_{CO_2} - H_A}{H_A} \times 100$*
Control	7.3	4.5	22.8
	11.5	10.0	21.3
	13.0	26.0	19.0
	10.8	33.0	19.3
	5.5	51.0	11.0
	2-3	57.5	22.0
Mean	5.0	30.6	19.2
Sickle cell anemia	88.3	6.0	44.3
	83.5	10.0	57.3
	74.5	16.0	90.0
	54.8	26.0	65.0
	48.5	31.0	93.0
	37.0	40.0	43.0
Mean	64.4	20.5	66.0

* Percentage increase in hematocrit of blood treated with carbon dioxide over blood treated by aeration.
H_{CO_2} = hematocrit of blood treated with carbon dioxide.
H_A = hematocrit of blood treated by aeration.

Carbon Dioxide Technic (Δ_1).—Between 5 and 10 cc. of venous blood is drawn without regard to the duration of the application of the tourniquet and placed in a vial containing an anticoagulant (oxylate or citrate

4. Winsor, T., and Burch, G. E.: Heart Disease in Patients with Sickle Cell Anemia, to be published.
5. Wintrobe, M. M., and Landsberg, J. W.: A Standardized Technique for the Blood Sedimentation Test, Am. J. M. Sc. **189**: 102-115 (Jan.) 1935.

crystals). Two or three cc. is transferred to a 50 cc. rubber stoppered Ehrlenmeyer flask into which fairly pure carbon dioxide is introduced or has previously been introduced. The flask is agitated at approximately two minute intervals for fifteen minutes or until the blood becomes dark blue. Two or 3 cc. of the original

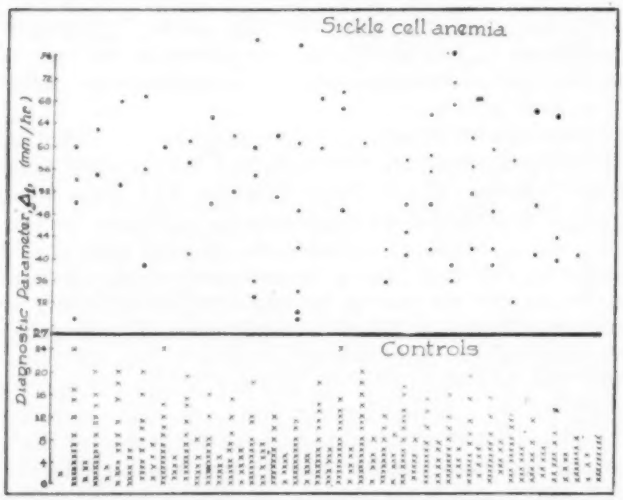

Chart 1.—Diagnostic parameters Δ_1 in 437 control individuals (normal subjects and patients with various diseases including anemias other than sickle cell anemia) and 73 patients with sickle cell anemia, showing the grouping about the parameter value of 20 mm. per hour.

sample (blood not treated with carbon dioxide) is placed in another open flask and aerated by intermittent agitation for about fifteen minutes or until the blood becomes bright red. Separate sedimentation rates are then set up using blood from each flask, the results being read in one hour. The parameter Δ_1 is positive or diagnostic of sickle cell anemia when the difference between the two rates is greater than 27 mm. per hour. The probable errors are as small as indicated for Δ_2.

TABLE 2.—*Change in Hematocrit Reading of Naturally Occurring Blood Treated with Carbon Dioxide as Compared with That Aerated*

Group	Diagnostic Parameter Δ_1 (Mm. per Hour)	$\frac{H_{CO_2} - H_A}{H_A} \times 100$*
Control		
Mean	3.5	10.9
Maximum	19.0	21.4
Minimum	0.0	4.3
Sickle cell anemia		
Mean	50.7	50.4
Maximum	76.0	70.0
Minimum	33.0	40.0

* See legend of table 1 for interpretation.

RESULTS

The results obtained with the diagnostic parameters Δ_1 and Δ_2 are summarized in charts 1 and 2. In the study of 175 control persons with various disease states, including many types of anemia, and 34 patients with sickle cell anemia, the diagnostic parameter Δ_2 did not give a false response in a single instance (chart 2). In 437 control patients and 73 with sickle cell anemia the diagnostic parameter Δ_1 also did not give a false response in a single instance. Sicklemia, that is, the condition of sickling without active sickle cell anemia, is not included in these studies. The average Δ_2 parameter for the 175 control subjects was 5.3, the extremes being 1 and 18 mm., while the average for the 34 patients with sickle cell anemia was 41.4 (extremes 29 and 65 mm. per hour); the average Δ_1 parameter for the 437 control patients was 5.5, the extremes being 0 to 24 mm. per hour, while the average for the 73 patients with sickle cell anemia was 53.5, the extremes being 29 to 77 mm. per hour. The definite grouping of individuals into those with large and those with small diagnostic parameters indicates the usefulness of the procedure as a diagnostic aid.

Chart 3 indicates the need for a high concentration of carbon dioxide in order to insure a satisfactory result for the parameter Δ_1. At atmospheric pressure the percentage of carbon dioxide in the gaseous mixture employed to saturate the blood with carbon dioxide should exceed 95 per cent. In the performance of the parameter Δ_2 the use of a tourniquet for six minutes will give equally good results when carbon dioxide gas is not available. It can be seen from table 1 that the more severe the anemia the greater the tendency for the parameter to deviate from the normal. This was true whether or not the anemia was artificially produced by separating the erythrocytes and plasma and recombining them in various proportions, or the anemia of various degrees occurred naturally in patients. For example, in the instance of an artificially produced anemia the diagnostic parameter Δ_1 averaged 88.3 mm. per hour when the hematocrit averaged 6 per cent and 37 mm. per hour when the hematocrit averaged 40 per cent, remaining abnormally high in sickle cell anemia even in the presence of normal hematocrit readings.

Significant differences of diagnostic importance were also noted in the hematocrit determinations of the bloods treated with carbon dioxide and air in the patients with sickle cell anemia (table 2). In all of 10 patients with sickle cell anemia, adequate centrifugation of the sedimentation tubes after determining the

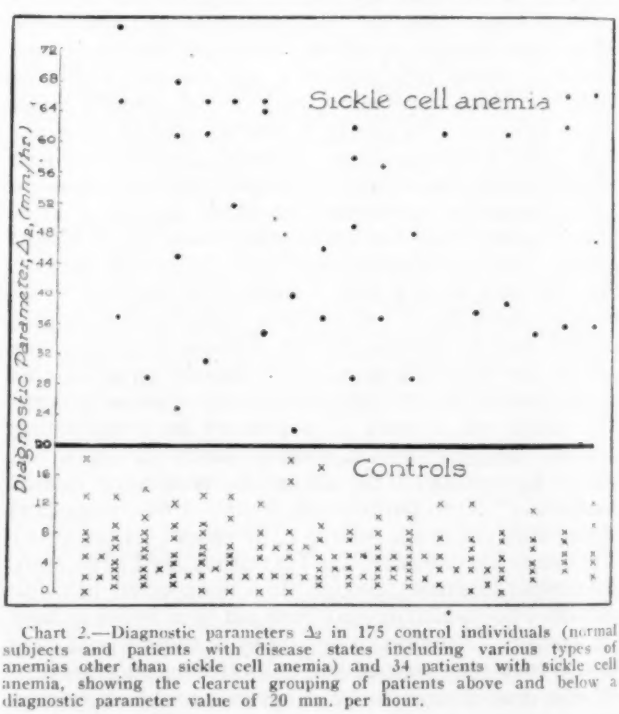

Chart 2.—Diagnostic parameters Δ_2 in 175 control individuals (normal subjects and patients with disease states including various types of anemias other than sickle cell anemia) and 34 patients with sickle cell anemia, showing the clearcut grouping of patients above and below a diagnostic parameter value of 20 mm. per hour.

diagnostic parameters (Δ_1) revealed a definite increase in the hematocrit reading of the blood treated with carbon dioxide over that treated with air; increase in the hematocrit reading averaged 50.4 per cent (extremes 40 and 70 per cent) following treatment with carbon dioxide. The diagnostic parameter Δ_1 in these patients

averaged 50.7 mm. per hour (extremes 33 and 76 mm. per hour). Of a control group of 51 normal subjects and patients with other disease states, the average increase in hematocrit reading was only 10.9 per cent (extremes 4.3 and 21.4 per cent) following treatment with carbon dioxide. The diagnostic parameter in this

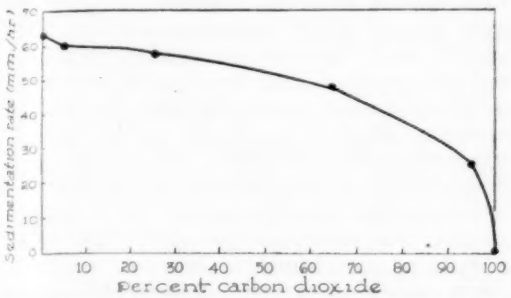

Chart 3.—Effect of the carbon dioxide concentration in air for fifteen minutes on the sedimentation rate of erythrocytes. The greatest effect is found in concentrations of 95 per cent or more.

group averaged 3.5 mm. per hour (extremes 0 and 19 mm. per hour). The difference was greater than 30 per cent in all of the bloods of the patients with sickle cell anemia, while none of the control subjects exceeded this value (chart 4). When an artificial anemia was produced (table 1) the mean increase in the hematocrit in patients wth sickle cell anemia was 66 per cent (extremes 44.3 and 93 per cent) and in the control subjects the average increase was 19.2 per cent (extremes 11 and 22.8 per cent).

COMMENT

From the data presented it is obvious that the diagnostic parameters Δ_1 or Δ_2 are reliable tests for active sickle cell anemia. Since they are simple and require no special apparatus or materials, they can be used routinely. The results are obtained in not longer than an hour, usually in much less time, which increases their serviceability. This is particularly true when dealing with acute clinical problems which may be confused with sickle cell anemia. It has been the practice to check all results obtained with the diagnostic parameter by the less rapid sickling preparation. In no instance has the diagnostic parameter given false responses. Since sedimentation rates are so frequently employed with patients with acute or obscure clinical states, it is simple to modify this to include the diagnostic parameter when dealing with Negro patients. This entails little additional effort. Since the influences of carbon dioxide are so definite on the erythrocyte size as reflected in the hematocrit, the results of the diagnostic parameter can be checked by centrifuging the sedimentation tubes following the sedimentation determinations. The diagnostic value of the hematocrit is illustrated by chart 4.

Needless to say because of these accentuated changes in hematocrit readings occurring as the result of exposure of blood to carbon dioxide, grave errors in the determination of the mean corpuscular volume and in the mean corpuscular hemoglobin concentration may result in hematologic studies in sickle cell anemia. Errors in the determinations of the mean corpuscular hemoglobin do not occur, as the calculations do not involve the use of the hematocrit readings. Furthermore, because of the striking differences in the sedimentation rates and hematocrit readings following the application of a tourniquet, it is obvious that usual clinical correction charts for anemia [5] apply only under special circumstances. The chart certainly does not apply for the hematocrit readings and sedimentation rates of carbon dioxide treated blood. The process of collecting blood usually involves venous stasis with a certain amount of treatment with carbon dioxide from the tissues, so that the usual correction charts for anemia are unreliable in sickle cell anemia. These and other phenomena have been discussed in detail elsewhere.[6]

As stated previously, since the introduction of the diagnostic parameter as a routine clinical test on all Negro patients in a medical service at the Charity Hospital there resulted the unexpected discovery of 27 patients with active sickle cell anemia in 612 consecutive patients examined. Clinical value of this information is obvious. Needless to say many clinical difficulties, errors in diagnosis and unnecessary special laboratory procedures were avoided by the early and correct diagnostic evaluation of these patients. In many of the patients the disease was either subtle or strongly suggested clinical syndromes other than sickle cell anemia. The routine use of the diagnostic parameter in examining the Negro patients proved to simplify the clinical study in a manner similar to that in which routine serologic examinations for syphilis simplified the management of the nonsyphilitic and the syphilitic patients.

It might be well to add that during the course of the hematocrit and diagnostic parameter determinations the presence or absence of mild jaundice and often leukocytosis, both objective signs of diagnostic value in active sickle cell anemia, were revealed. In this series of 72 patients with active sickle cell anemia jaundice and leukocytosis were invariably present. McGavack [7] found jaundice of the sclera in all but 10 of 214 patients with sickle cell anemia, indicating further the diagnostic importance of jaundice in active sickle cell anemia.

SUMMARY

Since sickle cell anemia is a great masquerader, a search for this disease should be made routinely in all Negro patients in a manner similar to that in which routine serologic examinations for syphilis are made. Since the institution of the routine use of the diagnostic parameter in a medical service at Charity Hospital,

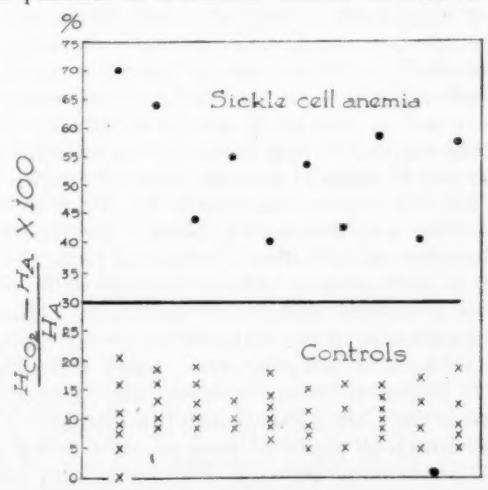

Chart 4.—Scatter graph of the percentage increase in the hematocrit of blood treated with carbon dioxide over that treated with air in 51 control normal subjects and patients with other disease states and 10 patients with sickle cell anemia. A difference greater than 30 per cent may be indicative of sickle cell anemia.

6. Winsor, T., and Burch, G. E.: Hemolysins, Agglutinins, and the Duration of Life of Drepanocytes in Patients with Sickle Cell Anemia, to be published.

7. McGavack, T. H., and Nussbaum, C. C.: Skin Manifestations of Sickle Cell Anemia, Urol. & Cutan. Rev. **46**: 194-200 (March) 1942.

27 cases of active sickle cell anemia have been discovered among 612 consecutive Negro patients tested. This has resulted in an early, though often unexpected, correct diagnosis in many patients who may have been erroneously managed in a rapidly moving hospital medical service.

The change in hematocrit reading following the treatment of sickle cell anemic blood with carbon dioxide is of diagnostic value. In no instance did the diagnostic parameter give a false response. This is particularly important in view of the fact that it is a rapid procedure and therefore of great value in the management of acute medical and surgical problems among Negro patients.

THE MANAGEMENT OF CHRONIC MALARIA BETWEEN ATTACKS

WITH SPECIAL REFERENCE TO THE EFFECT OF NICOTINIC ACID ON MALARIAL HEADACHE

LIEUTENANT COMMANDER MEYER A. ZELIGS (MC), U.S.N.R.

Since its earliest description in ancient times, malaria has been the subject of repeated writings by a host of authors and scientific investigators. For the past sixty years, following the discovery of Laveran in 1884 of the malarial plasmodium in the blood of malarial patients, a tremendous impetus has been added to the interest and scientific investigation of this disease. Eleven years (1895) after Laveran's epochal demonstration Sir Ronald Ross discovered the mosquito vector in the transmission of malaria to human beings and thus established the second important milestone in our advance against this age-old scourge. These two outstanding contributions served to stimulate further study of this disease, and at the present time malaria is being widely investigated by many epidemiologists, military physicians and public health workers.

Because of the episodic nature of chronic malaria and the long asymptomatic intervals which characterize the course of the disease all previous studies, as far as could be ascertained by review of the literature, have been concerned entirely with the problems of prevention, diagnosis and treatment of the acute attacks per se, practically nothing having been written concerning the management of malarial patients between attacks. The reason for this is quite understandable. Prior to World War II there was little need to observe civilian patients with chronic malaria during the interval phases of their disease, as such persons were almost invariably able to carry on a normal ambulatory existence. However, with the outbreak of the war and its almost immediate spread to malaria infested areas, many thousands of military personnel were stricken and subsequently returned to the United States with this disease. We are now faced with an unprecedented situation as the result of this tremendous influx. The social and medical aspects of malaria are already the concern of many physicians, and knowledge of some of its common clinical features has become a matter of general clinical importance. It is my purpose in this paper, therefore, to acquaint physicians, both civilian and military, with some of the more common and occasionally distressing features occurring in the interval phase of this disease.

From the Marine Barracks, Klamath Falls, Ore.

This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

"POSTMALARIAL ASTHENIA"

It would be in order at this point to comment, for the purpose of better understanding and correct nosology, on the use of the term "postmalarial asthenia." Unfortunately this antiquated expression, once applied to victims of malaria in the tropics and characterized by cachexia, anemia and other ailments, is today still used by many medical officers and often serves as a cover-all for psychosomatic and other disturbances not necessarily of malarial origin. The debilitation which was so commonly observed among tropical natives and the malnutrition which was present concomitantly with malaria among the poor white inhabitants throughout the South who were afflicted with this disease traditionally accounts for the origin of the term "postmalarial asthenia." One must bear in mind that present day "war malaria" constitutes a different problem from that seen during peacetime. Almost all military personnel who have acquired malaria have done so as a result of having been exposed to this infection in a combat area. These men developed malaria while under unusual stress, and the element of fatigue, mental and physical, played an important role in rendering them susceptible to any infection. In many instances the initial malarial attack developed while the patient was in actual combat against the enemy, the chills and fever having been endured simultaneously with battle weariness, hunger, intense fear and exposure to wet and cold. Following removal from the field, with the usual supportive measures and the use of antimalarial drugs, recovery from the febrile attack usually occurred within a few days. After the acute episode, such patients were found to exhibit many symptoms, among which were included easy fatigability, irritability, weight loss, headache, backache and disturbed sleep. This syndrome was often diagnosed or interpreted as "postmalarial asthenia." Medical officers who have had occasion to care for malarial patients shortly after their removal from combat are well aware that generalized weakness constitutes a major complaint among such persons at that time. There is no doubt that malaria contributed to the development of this so-called state of "asthenia." Accurate appraisal of the total situation, however, will usually reveal that such symptoms of weakness or nervousness are attributable to the physical and psychologic stress of combat and are in many instances a form of combat or operational fatigue. This does not mean that frequent malarial relapses may not in themselves bring about weight loss, fatigability and other somatic disturbances which are included in the asthenic syndrome mentioned, but it is to be emphasized that, despite the vicissitudes of combat, these men, thanks to suppressive action of atabrine, though much fatigued, suffered relatively few or no malarial attacks during this period. It was after removal from combat and following the discontinuance of suppressive therapy that increase in such relapses occurred.

It is interesting to note that in a large group of malarial patients, after their return to the United States and following a period of at least three months of reconditioning, the incidence of "asthenia" was found to be negligible despite the fact that many of these men, no longer under any suppressive treatment, were known to have had malaria for as long as three years, and a good number of them had a history of as many as twenty-five to thirty acute attacks. One notes in such a group that when the symptoms of operational fatigue or other concurrent involvement, especially tropical infections such as amebiasis and hookworm,

are recognized and specifically treated, these patients recover most gratifyingly despite the systemic persistence of their malaria. It would appear, then, that "postmalarial asthenia" is a term which might well be abandoned, as it provides only semantic confusion and serves no useful nosologic function.

MALARIAL HEADACHE

There are, on the other hand, certain distressing symptoms which occur so often in persons with chronic malaria that one must indict the malarial parasite itself in some way as being specifically responsible for their occurrence. Most prevalent among these is headache. It is safe to state that between 15 and 20 per cent of military personnel with a history of chronic malaria are subject to periodic bouts of mild to severe headache. This headache is in itself one of the most disturbing features of the interval phase of this disease, and its alleviation has presented itself as a real challenge to those concerned with the "reconditioning" of malarial patients. Even among persons whose past history revealed complete freedom from any type of headache and who exhibited stable and well integrated personalities, the intractable headaches which they suffered since the onset of their malaria had in many cases caused secondary symptoms including mild depression, seclusiveness, irritability and other seemingly neurotic traits.

It might be well at this point to digress for a moment and briefly describe the special features of so-called malarial headaches and differentiate them from the other forms of headache which are encountered in any group of persons. The character of the hadache, its location, periodicity, severity and other characteristic features, were carefully elicited in order to differentiate it from headache of nonmalarial origin. It was especially important not to include in this study persons who presented psychoneurotic features or other psychosomatic disturbances. The type of headache seen in patients with chronic malaria was usually bifrontal in distribution, almost always mild to moderate in severity, never intense or "bursting" in character and rarely described as being over the vertex or referred to as a "weight" or "pressure," as is frequently done by patients with headaches due to increased nervous tension. The typical malarial headache, if one may refer to it as such, is never hemicranial nor are there any neurologic prodromes, visual disturbances, nausea or vomiting, such as is seen in migrainous persons. The headache most often is present on arising in the morning and usually improves after the patient has been up for a few hours. A rather constant feature of patients with malarial headaches is the intolerance to any form of physical exertion, especiallly if it is performed in a hot sun. This almost invariably brings about a severe headache.

These persons were not benefited by the usual headache remedies. Salicylates, bromides, barbiturates and other analgesic or sedative drugs were, in our experience, found to be of no value in relieving this type of headache. Ergotamine tartrate administered hypodermically (0.5 cc.) to 15 selected patients, and amphetamine sulfate given orally (5 to 10 mg. doses) to 25 patients were found to be of no benefit and in several cases caused increase in the severity of the headache as the result of their vasoconstrictive action. It was soon realized that no drug or remedy was available which might effectively be used for the relief of malarial headache. Moreover, until better understanding of the altered physiology underlying such headache was forthcoming, any therapeutic approach to this problem necessarily had to remain along empirical lines. This is true not only in regard to headaches of malarial origin but also of the whole problem of headaches in general, the physiologic mechanism for which is as yet but slightly understood despite the brilliant experimental researches of Wolff [1] and others on the mechanism of migraine and histamine headache.

It has been repeatedly observed that in cerebral malaria pronounced hyperemia of the brain is present and stasis of blood in cerebral capillaries occurs. Autopsy studies of patients dying of this form of malignant malaria reveal characteristic clogging of cerebral capillaries by parasite laden erythrocytes. The tendency for parasitized red blood cells to become "sticky" (isoagglutination) has been established by those who have studied this form of malaria.[2] Whether such a state of capillary stasis occurs in patients with benign tertian malaria has not been shown, but if such were the case, the headaches might plausibly be explained on the basis of capillary stasis causing slowing of the rate of cerebral blood flow with resultant veniolar congestion, focal cerebral edema and anoxia. With this rationalization as the possible mechanism of malarial headaches, it occurred to me that an innocuous drug such as nicotinic acid, known to produce vasodilatation and to enhance cerebral blood flow,[3] might be clinically effective in relieving such a headache.

On the basis of this assumption, a group of patients whose only complaint was frequent and severe headache, attributed by the examiner to malaria, was selected for special study. Each of these patients was admitted and complete physical and neurologic examinations, including x-ray of the skull, were done. Careful manometric estimation of the cerebrospinal fluid pressure and complete laboratory studies of the spinal fluid were done in all the cases in this group. No significant changes were noted. To each of these patients an initial dose of 100 mg. of nicotinic acid was given orally. Within ten or fifteen minutes after ingestion of this medication the usual flush and cutaneous erythema was noted. The patient was observed for about an hour after taking the drug. Examination of thick blood smears, taken just before and thirty minutes after the administration of the nicotinic acid, failed to reveal the presence of parasites in the peripheral blood. Simultaneously with the development of the characteristic feeling of warmth or "glow" and shortly after the appearance of appreciable erythema of the face, chest and trunk which occurred in all the men who were given the drug, moderate to complete relief of the headache was noted in some persons about thirty to forty-five minutes after taking the drug. Duration of relief of headache varied with each individual but as a rule lasted for several days. In those cases in which the headache recurred every day and was present on arising in the morning, 50 to 100 mg. of nicotinic acid taken after breakfast usually gave relief for the entire day. In general, the drug was administered in accordance

1. Wolff, H. G., and Sutherland, A. M.: Experimental Studies on Headache: Observations on Mechanism of Headache in Migraine, Hypertension and Fever Therapy, Tr. Am. Neurol. A. **64:** 103-106, 1938. Wolff, H. G.: Migraine, Proc. Interst. Postgrad. M. A. North America (1939), 1940, pp. 165-169.

2. Knisely, M. H.; Stratman-Thomas, W. K., and Eliot, T. S.: Observations on Circulating Blood in the Small Vessels of Internal Organs in Living Macacus Rhesus Infected with Malarial Parasites, Anat. Rec., 1941, supp. 90, p. 79; Trop. Dis. Bull. **40:** 584, 1943; Capillary Circulation in the Malarial Infected Monkey: A Cinematographic Study, abstr., J. A. M. A. **116:** 2430-2431 (May 24) 1941.

3. Aring, C. D.; Ryder, H. W.; Roseman, E.; Rosenbaum, M., and Ferris, E. B., Jr.: Effect of Nicotinic Acid and Related Substances on the Intracranial Blood Flow of Man, Arch. Neurol. & Psychiat. **46:** 649 (Oct.) 1941.

with the individual needs as determined by the periodicity or frequency of the headache and was prescribed accordingly. Of 25 patients so treated, 10 stated that the headache had disappeared entirely, 8 noted moderate relief and 7 were not helped at all.

SUMMARY

1. A large number of military personnel with chronic malaria are now in evidence. These men, though ambulatory and in most instances capable of normal activity, are still in need of continued observation and proper care.

2. The term "postmalarial asthenia" should be abandoned, as careful evaluation and clinical appraisal invariably betray the nonmalarial nature of this condition.

3. Malarial headache is the most common and most disturbing symptom during the interval between attacks.

4. Secondary neurotic-like phenomena such as mild mental depression, seclusiveness, lack of interest and intolerance to physical exertion often develop following prolonged persistence of malarial headache.

5. In a group of 25 selected patients with malarial headache, nicotinic acid given orally in 100 mg. doses was found to relieve the headache in 10 cases, caused moderate improvement in 7 and was of no benefit in 8.

6. In view of the pharmacologic safety of this drug and the absence of any other effective therapy, it is felt that it should be given a therapeutic try.

OXIDIZED CELLULOSE—ABSORBABLE GAUZE

(CELLULOSIC ACID)

VIRGINIA KNEELAND FRANTZ, M.D.
AND
RAFFAELE LATTES, M.D.
NEW YORK

Dry gauze used to stanch bleeding in the open wound has, in the experience of most surgeons, been both life saving and hazardous. Hemorrhage has been checked which might otherwise have proved fatal, but the subsequent removal of the gauze which stuck to the raw surfaces often resulted in fresh bleeding, and the danger of infection was great. Packing frequently obscured infection in the depths of the wound and blocked drainage. In fact, so great is the risk of promoting infection by this means that strong directives against the use of tight packing in wounds have been issued by both American and British military surgeons.

Some time ago in the search for a nonirritating absorbable membrane for use in plastic repair of special structures such as tendons in a sheath, a material was proposed by Dr. Hans T. Clarke, professor of biochemistry at the College of Physicians and Surgeons, and was kindly released by Dr. W. O. Kenyon of the Eastman Kodak Research Laboratories for our study in advance of his publication.[1] This was oxidized cellulose, now known as cellulosic acid, and consisted of cellulose in the form of cotton, gauze and paper which had been subjected to oxidation by nitrogen dioxide. As a result of this, carboxyl groups—COOH—were formed which rendered the material soluble in dilute alkali. By altering the oxidation time the carboxyl content could be altered, and this percentage determined the chemical and physical properties of the material treated.

The preliminary experimental work to determine the reaction of animal tissues to the material was reported by Frantz.[2] The problem of sterilization had not at that time been solved. The product was used experimentally after boiling for three minutes in distilled water, as it does not withstand the autoclave.

Simultaneously Putnam[3] reported the first clinical trials of oxidized cotton pledgets used, as unoxidized pledgets had previously been used in neurosurgery as patties soaked in thrombin solution. The oxidized cotton patties did not require removal.

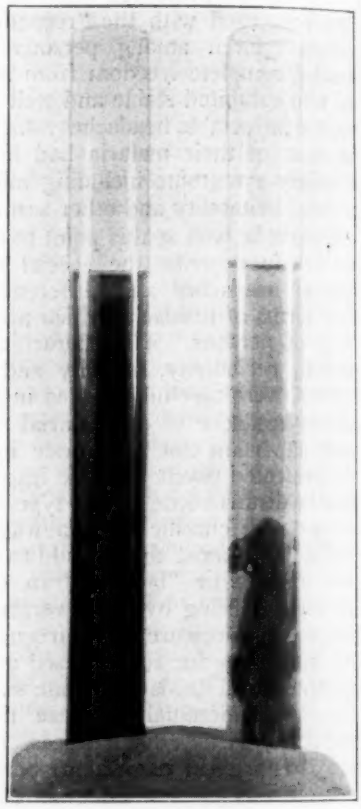

Fig. 1.—At right, oxidized gauze in dilute laked blood; at left, control without gauze. The control was bright red. The gauze was brown and the supernatant fluid almost colorless. (Ann. Surg., August 1944.)

All of this study to date had concerned the use of very small amounts of the material, and work is still in progress on the development of absorbable protective membranes. The handling of larger quantities of gauze, however, in freely bleeding lacerations of various tissues has been investigated. Originally we thought of it only as a packing to stanch bleeding which, happily, and contrary to the usage of ordinary gauze, could be left in closed cavities or, if desired, removed from open contaminated or infected wounds without sticking and causing fresh hemorrhage. This also implied that no blocking of drainage could take place with this material.

Accordingly studies were undertaken in animals, and to our surprise it became evident that the oxidized gauze was not just a packing like ordinary gauze but had a specific hemostatic action in its own right. This made the addition of a clotting agent, thrombin, superfluous even for cotton patties. Moreover, there was reason to believe that the acidity of the material might inactivate the enzyme to a certain extent. Needless to say, only oozing can be controlled by the simple application of the gauze. For brisker bleeding some pressure

From the Department of Surgery, Columbia University College of Physicians and Surgeons.

The gauze and cotton were supplied by Eastman Kodak Research Laboratories, Rochester, N. Y. (U. S. Pat. No. 2,232,990), through Parke, Davis & Company, Detroit.

The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Columbia University.

1. Yackel, E. C., and Kenyon, W. O.: Oxidation of Cellulose by Nitrogen Dioxide, J. Am. Chem. Soc. **64**: 121-127 (Jan.) 1942. Unruh, C. C., and Kenyon, W. O.: Investigation of the Properties of Cellulose Oxidized by Nitrogen Dioxide, ibid. **64**: 127-131 (Jan.) 1942.

2. Frantz, V. K.: Absorbable Cotton, Paper and Gauze (Oxidized Cellulose), Ann. Surg. **118**: 116-126 (July) 1943.

3. Putnam, T. J.: The Use of Thrombin on Soluble Cellulose in Neurosurgery: Preliminary Note, Ann. Surg. **118**: 127-129 (July) 1943.

must be used, possibly reinforced with tamponade or with retaining sutures.

This specific hemostatic property seems to depend on the formation of coagula apparently consisting of salts of cellulosic acid and hemoglobin. It can be illustrated in vitro by immersing a strip of gauze in a

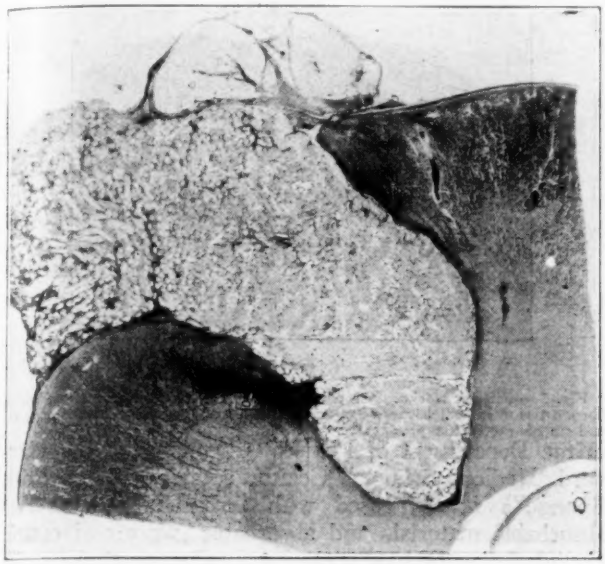

Fig. 2.—Section showing oxidized gauze in experimental wound of dog's kidney. In this and the following illustrations the wounds were made as nearly as possible comparable. This shows a section forty-eight hours after packing. The gauze is closely applied to the wound surface. (Ann. Surg., August 1944.)

dilute solution of laked blood (fig. 1). If ordinary gauze is used there is no obvious change. Oxidized gauze so placed immediately begins to draw out all color from the solution and appears after some hours as a brown fibrillar mass in clear, colorless fluid.

In a bleeding wound the gauze swells, turns black and sticks (fig. 2). This adherence is about as strong as the true clot formed when fibrin foam [4] or gelatin sponge [5] is used as a carrier for thrombin for surface bleeding. In a deep laceration or cavity, as for instance a laceration of liver or kidney, or the prostatic bed

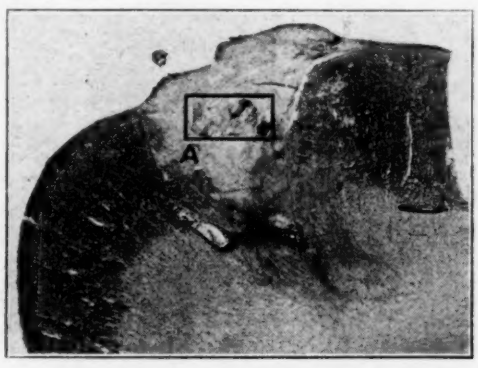

Fig. 3.—Three weeks after packing. Remnants of gauze are seen in the marked box. The rest of the pale zone in the cortex is composed of large mononuclear phagocytes (see figure 6). There is fibrous reparative tissue at *A*.

after suprapubic prostatectomy, dry, oxidized gauze is easily handled and no delay is necessary to prepare fresh sterile thrombin solution. Moreover, in such lacerations experimentally, the gauze used wet has been less effective than dry, even if the wetting has been in thrombin solution.

The experimental work (figs. 2-6) which led to clinical use of the material and the first clinical trials of gauze were reported by us in August 1944.[6] The clinical use was made possible when the gauze was available sterile, in double glassine envelops, prepared by Parke, Davis & Company. The material had been used in only 17 clinical cases at that time. In a more recent publication,[7] 115 clinical trials were reported. Cases to date are shown in the accompanying table.

In the original tests for possible irritating qualities and for absorbability in various animal tissue, where implants were made in relatively avascular beds, such as peritoneum, joint cavities and subcutaneous tissue, there was frequently no blood combined with the gauze. Considerable variation in absorption time was noted, and it was not realized at first that this was in part a matter of blood in the sponge. A simple test using rats was devised for testing many absorbable materials.[8] When the implants of sample lots of gauze were made without impregnation with blood, it was noted that these small implants, 1 cm. square, eight ply, were sometimes entirely absorbed in the subcutaneous tissue of the back as early as the fourth day. The animals as a rule were killed on the seventh day in order to allow for the development of any possible infection, but some were examined at an earlier time after operation. This rapidity of absorption of the material was not duplicated in the experiments in hemostasis, and accordingly, in 9 rats, implants were made after first soaking the gauze in blood obtained by aspiration of the heart. They were killed postoperatively at 1, 2, 4, 7, 11, 13, 20, 24 and 30 days respectively. There was progressive decrease in the size of the implant, but even at 24 days there was still a small residual brown mass. At 30 days it was not present. Microscopically these tiny residua show a broad zone of phagocytes and a few remnants of cellulose not invaded by fibrous tissue. Also there were no significant gross or microscopic evidences of inflammation at any time. The findings were comparable in this respect to those noted after implantation of the dry material.

Fig. 4.—Eight weeks after packing. There is no gauze present. The defect is chiefly filled with a minimum of fibrous tissue still containing renal tubules and glomeruli. The bulk of fibrous tissue present is at *A*, where it surrounds a pale zone of phagocytes. The cavity in the depths is one of the calices, into which a small mass of granulation tissue projects and which contains some blood clot.

The only untoward effect, apparently, when the material is introduced into the tissues, is in bone. The acidity of the gauze is considered the probable cause of delay in the formation of the early callus in clean experimental fractures and defects. Ultimately, however, repair does take place, and there is, of course,

4. Ingraham, F. D., and Bailey, O. T.: The Use of Products Prepared from Human Fibrinogen and Human Thrombin in Neurosurgery, J. Neurosurg. **1**: 23-39 (Jan.) 1944; footnote 12.
5. Light, R. U.: Personal Communication to the authors; cited by Frantz.[7]
6. Frantz, V. K.; Clarke, H. T., and Lattes, R.: Hemostasis with Absorbable Gauze, Ann. Surg. **120**: 181-199 (Aug.) 1944.
7. Frantz, V. K.: New Methods of Hemostasis, S. Clin. North America **25**: 338-349 (April) 1945.
8. Lattes, R., and Frantz, V. K.: Absorbable Sponge Tests, Ann. Surg. **121**: 894 (June) 1945.

no significant delay when, in the open lacerated compound fracture, hemostasis is secured by this means and the gauze is removed in the course of one to three days. Some retardation of epithelization has also been observed, and oxidized gauze is not recommended for a surface dressing of open wounds, except for hemostasis, to be removed when it has served this purpose. In this connection it is well to place it so that it does not overlap the skin edges, where it will stick like dry glue in contrast to its jelly-like character against moist tissue. It is this property of becoming gelatinous in the tissue fluids which allows it to be removed from the open wound without starting fresh bleeding and which also is insurance against any possibility of blocking drainage.

Other clinical reports of the use of oxidized cellulose are those of Cronkite, Deaver and Lozner [9] and Uihlein and his associates [10] at the Mayo Clinic. In the majority of the cases in these two reports absorbable cotton was used not dry but as a carrier of thrombin. Further trial in general surgery and neurosurgery is reported by

Hemostasis with Oxidized Gauze or Oxidized Cotton

Total of Clinical Cases to Date	
Partial hepatectomy	4
Liver biopsy or gallbladder bed	27
Retroperitoneal or retropleural tissue	27
Infected and contaminated wounds	8
Bone	9
Biopsy or excision (lymph nodes or tumor)	10
Amputation stump	2
Thyroid	2
Tooth socket	2
Nasal cavity	16
Tonsillectomy	1
Rectum	1
Prostate	30
Kidney or kidney bed	11
Circumcision or orchiectomy	3
Vaginal wounds	16
Urinary bladder	1
Neurologic	110
Total	280

Osterberg [11] to be in progress at the Mayo Clinic using dry material.

Isolated reports in other personal communications from military surgeons of the American and British armies on the Western and Italian fronts and at bases in England have been received. These have been favorable but of necessity limited by the paucity of the material released. So also have other individual reports from surgeons in civilian practice in the United States. The most significant military report, a personal communication, comes from a captain in the Medical Corps from a forward field hospital in the European Theater of Operations handling nontransportable cases: "The surgical team with which I am working has had 18 severe cases with large liver lacerations or partial hepatectomies. Oxidized gauze has been applied to the bleeding surfaces with apparent hemostasis and no postoperative indications of further bleeding. The follow-up of course was limited to the immediate postoperative period (up to sixteen days), during which time no complications, such as subphrenic abscesses or further bleeding, were noted. Most of them drained bile, as would be expected."

9. Cronkite, E. P.; Deaver, J. M., and Lozner, E. L.: Experiences with Use of Thrombin With and Without Soluble Cellulose for Local Hemostasis, War Med. **5**: 80-82 (Feb.) 1944.

10. Uihlein, A.; Clagett, O. T., and Osterberg, A. E.: The Use of Oxidized Cellulose for Hemostasis in Surgical Procedures: Preliminary Report, Proc. Staff Meet., Mayo Clin. **20**: 29-32 (Jan. 24) 1945. Uihlein, A.; Clagett, O. T.; Osterberg, A. E., and Bennett, W. A.: Absorbable Oxidized Cellulose with Thrombin as a Hemostatic Agent in Surgical Procedures, Surg., Gynec. & Obst. **80**: 470-472 (May) 1945.

11. Osterberg, A. E.: Personal communication to the authors.

Other absorbable materials are also in the stage of clinical investigation. These we have discussed in greater detail elsewhere.[7] The most widely publicized is human fibrin foam, which must be used in conjunction with thrombin. The reader is referred to THE JOURNAL article [12] for references to the work initiated

Fig. 5.—Fifteen weeks after packing. The narrow V shaped shadow is fibrous tissue in which there are renal tubules and glomeruli but no gauze and no characteristic phagocytes.

in the Department of Physical Chemistry of the Harvard Medical School. Gelatin sponge ("Absorbable Sponge") is also used with thrombin. These two absorbable materials and absorbable gauze and cotton (cellulosic acid) have now been recommended by the Committee on Surgery of the Office of Scientific Research and Development for use by the Army and Navy. It is hoped that clinical trial of all three materials will be undertaken by many investigators to determine as soon as possible the fields of usefulness.

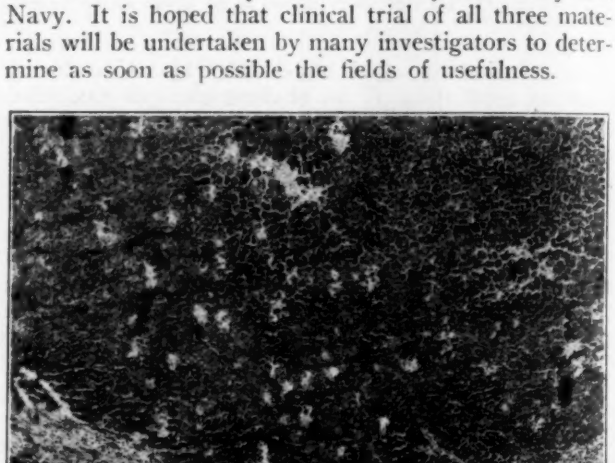

Fig. 6.—Appearance under higher power four and a half weeks after packing, showing a broad zone of typical phagocytes immediately adjacent to kidney parenchyma. No gauze is seen. (Ann. Surg., August 1944.)

COMMENT

A brief review of the experimental and clinical investigation of absorbable gauze and absorbable cotton has been presented. The materials have been found to be

12. Ingraham, F. D., and Bailey, O. T.: Clinical Use of Products of Human Plasma Fractionation: III. The Use of Products of Fibrinogen and Thrombin Surgery, J. A. M. A. **126**: 680-685 (Nov. 11) 1944.

hemostatic in their own right when used dry, to be nonirritating and to be absorbed in varying lengths of time depending on the amount used, the tissue bed and the amount of blood. They are proposed for general and special surgical use with the reiterated warning that, although nonirritating and absorbable, they do constitute, until in solution, particulate foreign bodies. The surgical implications of this need no emphasis.

630 West 168th Street.

Clinical Notes, Suggestions and New Instruments

CORD TRANSFUSION IN THE MANAGEMENT OF A PREMATURELY DELIVERED INFANT WITH ERYTHROBLASTOSIS FETALIS

CLIFFORD H. HARVILLE, M.D., WARSAW, N. Y.

The basic role of the Rh factor in the pathogenesis of erythroblastosis fetalis is now well established. Concerning the prevention and treatment of this condition, however, such unanimity of opinion is lacking. All authorities agree that, for an infant born alive with manifestations of erythroblastosis, the treatment is prompt transfusion with compatible Rh negative blood. If irreversible changes are not already present, this is life saving, and such reduction in mortality as has to the present been effected is attributable largely to this therapy.

With the hope of further reducing the high toll still exacted by this disease, premature termination of pregnancy has been advocated in order to limit the period of intrauterine hemolysis. The principal division of opinion that exists in relation to the therapy of erythroblastosis is concerned with the advisability of this procedure. Potter,[1] Javert[2] and other investigators who have contributed extensively to the literature of the subject have expressed the opinion that early delivery in these cases is rarely justified except for maternal indication. The position is taken that pregnancy cannot be terminated sufficiently early for the fetus to escape hemolytic disease and that the added handicap of prematurity more than offsets any advantage to be gained by shortening the period of intrauterine hemolysis. Proponents of early delivery believe, however, that a few weeks of prematurity entail much less hazard for the fetus than an equal period of continuing exposure to the isoantibodies accumulating from the mother's blood. It is felt too that this is the only therapy at present available which gives promise of salvaging a further percentage of these infants.

Final evaluation of this therapeutic procedure, which must await reports of a larger experience in its use, will no doubt be largely conditioned by our success in dealing with the hazard of prematurity, admittedly somewhat increased in the presence of hemolytic disease of the fetus. Careful attention to the principles of premature care in the management of these infants is manifestly essential. Too great a degree of prematurity is certainly not desirable, and pregnancy should probably be continued to approximately four weeks of term. Experience indicates that this is sufficiently early to insure the recovery of a considerable number of children who would not survive if pregnancy should be continued to full term. These infants, needless to say, should be delivered only into the most favorable environment. The more drastic methods of inducing labor are probably best avoided, and if simple medical induction fails it is felt that cesarean section merits consideration. Analgesia and general anesthesia are interdicted.

A neglected procedure which I believe to be of the greatest value in the management of these prematurely delivered infants is the use of the umbilical vein for the initial blood transfusion. This is a technically simple procedure which involves minimum handling of the infant and obviates the traumatization incident to venipuncture, factors of vital importance in this critical initial period of premature management. The faulty oxygenation and tendency to cyanosis characteristic of the premature infant is accentuated in the presence of hemolytic disease. Anoxemia results not only from the reduction in the number of red blood cells but also from the preponderance of macrocytes. These cells are less efficient carriers of oxygen than are normocytes, a characteristic also of erythroblasts. The immediate need in these infants is to combat this critical anemic anoxia. This is accomplished most promptly by the immediate transfusion of blood through the umbilical vein. Prothrombin, frequently deficient in erythroblastotic infants, is probably more promptly supplied in this way than by the vitamin K preparations also given routinely to these infants as well as to the mothers prior to delivery.

The simplicity of this method and the promptness of blood administration it assures commend it also for the initial transfusion of the full term infant suspected of having erythroblastosis. It might well prove life saving in the occasional infant such as the one mentioned by Wiener,[3] who he states would have died had blood not been given within fifteen minutes of its birth.

A survey of the literature on erythroblastosis, which includes a number of papers detailing transfusion methods, has yielded no mention of the umbilical vein having been used for giving blood to infants with this disease. Its use, however, was found to have been suggested by Mayes[4] in a paper dealing with routine cord transfusion in premature and immature infants, in which he states that, "if hemorrhagic disease or erythroblastosis is suspected, cord transfusions may be of benefit."

The following case report illustrates the successful use of cord transfusion in conjunction with early delivery in the management of erythroblastosis fetalis.

REPORT OF CASE

Mrs. G. M., white, aged 30, quintipara, sextigravida, consulted me on Nov. 17, 1944. From the menstrual history, corroborated by uterine mensuration, it was estimated she would be at term April 5, 1945. She gave the following obstetric history: Her first three pregnancies resulted in the delivery of normal children who are all living and well. The fourth child became deeply jaundiced shortly after birth, the jaundice persisting for about ten days. This child survived and is also well. Her fifth pregnancy resulted in the delivery, March 24, 1943, of a full-term jaundiced infant who died on the fourth day. The findings at necropsy were those of severe hemolytic disease of the newborn with pronounced selective jaundice of the basal ganglions of the brain (kernicterus).

Blood studies showed this woman to be type AB Rh negative. Serologic tests for syphilis were negative. The husband was type O Rh positive and each of the four surviving children was found to be Rh positive, indicating the father to be homozygous with respect to the Rh factor. On Feb. 7, 1945 anti-Rh agglutinins were demonstrated in the patient's blood in low titer. With this obstetric history and the virtual certainty that the fetus in this pregnancy was Rh positive, premature delivery seemed to us to offer this infant the best, probably the only, chance for survival.

On March 6, 1945, thirty days before estimated term, with the infant in apparently good condition, medical induction of labor was attempted, without resort to rupture of the membranes or other surgical methods. This failing, on March 8 a cesarean section was performed under local procaine anesthesia by Dr. Henry S. Martin. The umbilical cord was clamped immediately after delivery to exclude the blood from the placental circulation, and 60 cc. of blood from a type O Rh negative donor were given the infant through the umbilical vein.

From the Obstetrical Service, Wyoming County Community Hospital.

1. Potter, E. L.: The Rh Factor in Obstetrics, M. Clin. North America **28**: 254 (Jan.) 1944.
2. Javert, C. T.: Further Studies on Erythroblastosis Neonatorum of Obstetric Significance, Am. J. Obst. & Gynec. **43**: 921 (June) 1942.
3. Wiener, A. S.: The Rh Factor in Therapy (symposium), New York State J. Med. **45**: 302 (Feb. 1) 1945.
4. Mayes, H. W.: Cord Transfusions in Newborn Infants, Am. J. Obst. & Gynec. **48**: 36 (July) 1944.

Studies of blood aspirated from the cord vein revealed a hemoglobin content of 8 Gm. per hundred cubic centimeters and a red blood cell count of 2,690,000, with a preponderance of macrocytes and pronounced polychromatophilia. There were but 7 erythroblasts reported per hundred leukocytes. The icterus index was 100. The infant's blood type was subsequently found to be O Rh positive.

The baby, a girl, breathed spontaneously. Its general condition, except for a rather pronounced pallor, seemed good. Clinical icterus was doubtfully present at birth but was definite when checked three hours later. The jaundice gradually deepened, reaching its maximum intensity about thirty hours after birth and then was essentially unchanged through the fifth day of life, after which it gradually lessened.

On the second day (March 9) examination of the peripheral blood showed a hemoglobin of 9.6 Gm. and 6 erythroblasts per hundred white blood cells. Failure of these cells to increase after birth as they have been observed to do in untreated cases when initially low in number was quite possibly attributable to the initial blood transfusion. A second transfusion of 90 cc. of whole blood from an O Rh negative donor was given at this time through an incision in the greater saphenous vein, the scalp veins being of unusually small caliber. Following this the red cell count was 5,700,000 and the hemoglobin content 17.24 Gm., these levels being maintained through the second week of life. During the third week there was a gradual lowering of these values, so that prior to the infant's discharge from the hospital on March 28 the red cell count was 3,110,000 and the hemoglobin 10 Gm. On April 2 the baby was seen for a checkup, and although her excellent weight gain had been continued and her general condition was good, she had again developed a definite pallor. A blood check showed an erythrocyte count of 2,900,000 and a hemoglobin of 8.2 Gm. There were no pathologic cells. She was given 100 cc. of whole O Rh negative blood with a return to normal red cell and hemoglobin values, and with the administration of iron these have continued at optimal levels to the present. Now at 4½ months the baby's development has been in all respects normal, and her weight is that of an infant of the same age born at term.

Anti-Rh agglutinins were not demonstrated in the mother's blood ten days after delivery with the usual technic. Facilities for testing for the presence of inhibitor or blocking antibodies were not then available.

COMMENT

The evidence in this case seemed to justfy the belief that this infant would have little chance of survival if pregnancy was continued to full term. The fatal erythroblastosis with kernicterus manifested by the previous infant indicated that there was already in that pregnancy an extreme degree of sensitization of this mother. Experience has established that the intensity of maternal immunization increases in each succeeding pregnancy in which the fetus is Rh positive, resulting inevitably in progressively more severe manifestations of erythroblastosis in successive infants. The evidence that the father was homozygous with respect to the Rh factor, indicated that the infant possessed this factor.

The extent of the hemolysis present in this fetus four weeks before term, as evidenced by the degree of anemia and the high icterus index, would appear to confirm the belief that this infant would almost certainly not have survived had pregnancy been continued to full term.

SUMMARY

The case reported lends support to the thesis that in carefully selected cases of erythroblastosis fetalis early delivery is a rational therapeutic procedure.

Cord transfusion, hitherto neglected in these cases, is an important adjuvant procedure in the management of the prematurely delivered erythroblastotic infant. It is the method of choice for the initial transfusion also of the full-term infant suspected of having this disease.

88 North Main Street.

FAILURE OF CHOLINE CHLORIDE TO AUGMENT ANEMIA IN CIRRHOSIS OF THE LIVER

JANET WATSON, M.D., AND W. B. CASTLE, M.D., BOSTON

The report by Davis [1] of the production of hyperchromic anemia in dogs by the administration of choline chloride is of considerable interest in view of the increasing use of this substance in the treatment of liver disease in man.[2] Cartwright and Wintrobe [3] recently gave choline chloride to 3 men over a period of ninety days without any hematologic effect. However, since none of their patients was suffering from hepatic disease, it seems worth while to report briefly a hematologic study of the effect of choline in a patient with cirrhosis of the liver and macrocytic anemia.

Davis [1] produced anemia in dogs by giving choline chloride orally in a dose of 10 mg. per kilogram of body weight daily for at least twenty-five days. When a definite anemia was established, the dosage was successively increased to 20 and 30 mg. per kilogram. There was said to be a reduction of 30 to 43 per cent in the red blood cell count within seventy to ninety days. Our patient, T. T., aged 60, had had an extensive intake of alcohol for many years and showed evidence of pronounced hepatic insufficiency in all the liver function tests. He was given choline chloride [4] in a 5 per cent aqueous solution in a dose of 17 mg. per kilogram of body weight daily for seventy days, by intravenous administration for the first thirty days and by oral administration for the remaining forty days. This represented a total daily dose of 1 Gm. During the period of choline therapy the patient was maintained on the regular hospital diet and received no other medication. The hematologic data are shown in the accompanying table. It will be seen that on admission the patient had a macrocytic anemia. This was slowly improving before choline therapy was begun and continued to improve during therapy.

Negative Effect of Choline Chloride Administration on Blood Values of Patient with Macrocytic Anemia and Cirrhosis of the Liver

Hospital Day	Red Blood Cells, Millions per Cu. Mm.	Hemoglobin, %	Hematocrit, Cc. per 100 Cc.	Mean Corpuscular Volume, Cubic Microns	Mean Corpuscular Hemoglobin Concentration, %	Mean Corpuscular Hemoglobin, Micromicrograms	Reticulocytes, %	White Blood Cells, per Cu. Mm.	Icterus Index, Units
0	2.31	50	23.8	103.0	32.8	33.8	0.8	5,200	4
10	2.21	36	23.3	105.4	24.5	25.8	2.0	4,200	4
20	2.53	50	27.2	107.5	28.3	30.4	3.1	6,200	4
30	2.66	50	29.3	110.2	26.6	29.3	2.0	5,300	3
40	2.62	53	28.9	110.3	28.4	31.3	0.8	7,700	5
50	....	..	....	.....	....	....	...	.....	..
60*	3.42	66	32.5	95.0	31.7	30.1	2.6	8,100	5
70	3.33	68	32.8	98.5	32.6	32.1	2.8	6,600	5
80	3.30	67	34.9	103.9	29.8	31.0	2.2	7,100	5
90†	3.79	74	36.2	95.5	32.0	30.6	0.8	11,000	5
100	4.11	77	37.6	91.5	31.9	29.1	0.8	7,000	4
110	3.94	74	37.3	94.7	30.8	29.2	0.4	6,000	3
120	3.90	71	37.5	96.2	29.6	28.5	1.0	10,400	4
130	4.27	79	40.0	93.7	30.8	28.8	0.9	9,700	4

* Daily intravenous administration of 1.0 Gm. of choline chloride begun.

† Daily oral administration of 1.0 Gm. of choline chloride begun.

Dr. Watson is Commonwealth Fund Fellow.

Miss Ruth Pearson performed the blood examinations.

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School.

1. Davis, J. E.: Experimental Production of Hyperchromic Anemia in Dogs Which Is Responsive to Anti-Pernicious Anemia Treatment, Am. J. Physiol. **142**: 402 (Oct.) 1944.

2. Broun, G. O., and Muether, R. O.: Treatment of Hepatic Cirrhosis with Choline Chloride and Diet Low in Fat and Cholesterol, J. A. M. A. **118**: 1403 (April 18) 1942. Russakoff, A. H., and Blumberg, H.: Choline as Adjuvant to Dietary Therapy of Cirrhosis of Liver, Ann. Int. Med. **21**: 848 (Nov.) 1944.

3. Cartwright, G. E., and Wintrobe, M. M.: Effect of the Administration of Choline Chloride on the Hematologic Picture in Human Beings, J. A. M. A. **127**: 911 (April 7) 1945.

4. Supplied by Dr. George Hazel, Abbott Laboratories, North Chicago, Ill.

CONCLUSION

Choline chloride, in a dose of 17 mg. per kilogram of body weight given daily for seventy days to a patient with cirrhosis of the liver and macrocytic anemia, did not intensify the anemia. In fact, during this period the red blood cell and hemoglobin values progressively increased.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

SPERTI IRRADIATION LAMP MODEL HI-41 ACCEPTABLE

Manufacturer: Sperti Corporation, Norwood Station, Cincinnati 12, Ohio.

The Sperti Irradiation Lamp Model HI-41 is a combination ultraviolet and infra-red generator. Its radiation characteristics are such that it qualifies as a sun lamp. The firm claims that it produces an erythema in 3 minutes at a distance of 18 inches. The lamp will do therapeutically anything that can be expected from an acceptable sun lamp.

The Sperti Irradiation Lamp was investigated in a laboratory acceptable to the Council. The lamp was operated according to the manufacturer's instructions enclosed in the package. It was connected to a regulated 120 volt alternating current supply to insure constant operating conditions. An alternating current ammeter was placed in the supply line, and a voltmeter across the lamp terminals. When tested, the current supplied to the lamp was 3.7 amperes at 113 volts.

The Council investigator reported:

1. Spectral Radiative Measurements.

The relative intensities measured with a quartz-fluorite achromatic spectroradiometer, corrected for absorption by the lenses, etc., are given in the accompanying table.

Wavelengths—Angstroms	Relative Intensity
3132	113.0
3024	32.0
2967	11.0
2894	2.0
2804	2.3
2654	0.5
2537	0.0
Total	160.8

The amount of radiation of wavelengths 2,800 angstroms and shorter is only about 0.3 per cent of the total.

2. The total ultraviolet radiation of wavelengths 3132 angstroms and shorter measured along the central axis, at a distance of 2 feet (61 centimeters) from the edge of the reflector (64 centimeters from the front edge of the burner), when operated on 115 volts (alternating current) was 133 microwatts per square centimeter, which is 35 to 40 per cent above the minimum requirement. This ultraviolet generator, therefore, complies with the Council's requirements in spectral and total output of ultraviolet for acceptability as a sun lamp.

3. The total radiation of all wavelengths, measured along the central axis, at a distance of 2 feet from the reflector, was 12,700 microwatts per square centimeter. Of this amount, only 6.7 per cent was transmitted by a cell of water 1 centimeter in thickness, showing that most of the infra-red radiation is of wave lengths longer than 1.2 microns, which is not deeply penetrating. While the total output of infra-red is appreciable, it is only about 1/9 to 1/10 that of an infra-red generator designed for that purpose.

The Sperti Irradiation Lamp operates on either alternating or direct current. Its height, extended, is 5 feet 6 inches and collapsed is 3 feet 11 inches. Its weight packed is 29 pounds and unpacked, 23 pounds. The finish is chrome and hard-baked cream enamel. The stated operating wattage is given as 475. The Council test shows 734 watts.

The Council on Physical Medicine voted to accept the Sperti Irradiation Lamp, Model HI-41 for inclusion in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The following statement has been authorized for publication by the Council. AUSTIN SMITH, M.D., *Secretary.*

DRUGS SOLD IN FOREIGN COUNTRIES

From time to time the Council office has been requested to supply information on drugs which are made available in other countries. Many of these inquiries arise because of treatment undergone by patients from other countries, because of drugs used by physicians who have resided in other countries but who are now in the United States and because of publicity given by the press to drugs developed or sponsored elsewhere. Drug and pharmaceutical manufacturers and distributors in the United States are invited to supply information concerning the names, actions and uses, American equivalents and other useful data so that the files of the Council office may be as complete as possible and so the best information service can be provided to its inquirers. At the same time readers of this column are invited to make use of the information in the Council files by directing inquiries to the Secretary of the Council, in care of the American Medical Association, 535 North Dearborn Street, Chicago 10.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

VITAMIN B COMPLEX SYRUP.—A syrup prepared from a concentrated extract of dried brewers' yeast and an extract of corn processed with Clostridium acetobutylicum, with inverted cane sugar 40 per cent w/v and natural flavoring.

Actions and Uses.—Proposed for prophylaxis and treatment of conditions arising from deficiency of the vitamin B complex.

VI-CO PRODUCTS CO., CHICAGO

Vitamin B Complex Syrup: Each 5 cc. contains thiamine hydrochloride 1.5 mg., riboflavin 1.0 mg., pyridoxine hydrochloride 0.5 mg. and nicotinic acid 7.0 mg., with other vitamin B complex factors as extracted from 10 Gm. of dried brewers' yeast.

U. S. Patent 2,193,876 (March 19, 1940; expires 1957).

THEOPHYLLINE ETHYLENEDIAMINE (See New and Nonofficial Remedies, 1944, p. 373).

The following dosage forms have been accepted:

BARLOW-MANEY LABORATORIES, INC., CEDAR RAPIDS, IOWA

Tablets Aminophylline: 0.1 Gm. and 0.2 Gm.

AMERICAN PHARMACEUTICAL CO., INC., NEW YORK

Tablets Aminophylline: 0.2 Gm. enteric coated with shellac.

CALCIUM LEVULINATE (See New and Nonofficial Remedies, 1944, p. 457).

The following dosage forms have been accepted:

CHEMO PURO MANUFACTURING CORP., LONG ISLAND CITY, N. Y.

Calcium Levulinate: 30 Gm. and 480 Gm. bottles.

CARROLL DUNHAM SMITH PHARMACAL CO., ORANGE, N. J.

Calcium Levulinate Injection 10% W/V: 1 Gm. in 10 cc.

BISMUTH SUBSALICYLATE (See New and Nonofficial Remedies, 1944, p. 236).

The following dosage form has been accepted:

THE SMITH-DORSEY CO., LINCOLN, NEB.

Bismuth Subsalicylate in Oil with Chlorobutanol: 50 cc. vials. A suspension of bismuth subsalicylate in peanut oil containing in each cubic centimeter bismuth subsalicylate 0.13 Gm. with 3 per cent chlorobutanol added.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, NOVEMBER 17, 1945

THE HILL-BURTON HOSPITAL CONSTRUCTION BILL

The Senate Committee on Education and Labor, after what has obviously been extended and thoughtful consideration, has reported with approval a revised measure (S. 191) for federal aid in the construction of hospitals and related facilities. Several important amendments are suggested by the committee.

The reported bill provides for a five year program and authorizes annual appropriations of $75,000,000 for each of the five fiscal years, plus unappropriated and unexpended balances, as compared with $100,000,000 in the original bill for the first year and an unlimited authorization thereafter. In the original bill an appropriation of $5,000,000 was authorized for state administrative expenses. The committee has eliminated this authorization, taking the position that the states should be able to handle this feature without federal aid. Federal funds to be made available by this legislation will be allotted according to a new formula devised by the committee which eliminates administrative discretion in its application.

Misgivings had been felt by many because the term "public health center" was defined in the bill as a publicly owned facility for the provision of public health services *and medical care*. The reported bill eliminates the italicized words, thus limiting the functions of such centers to the provision of public health services, the scope of which will be determined by state law.

As introduced, the bill required a state plan to embody a hospital construction program which would be in accord with "standards" prescribed by the Surgeon General with the approval of the Federal Advisory Council. The Senate committee concluded that the independence of the states in carrying out their plans will be better preserved if the Congress specifies general requirements and limits the federal government's regulatory control to those requirements. These general requirements are set forth specifically in the amended bill. They relate in the main to the number and general manner of distribution of hospitals to be constructed under the program. The scope of the federal regulatory powers as contemplated by the requirements is entirely consistent, in the opinion of the committee, with effective federal control of appropriated moneys.

The designation of the council to collaborate with the Surgeon General, on the federal level, in carrying out the purpose of the bill has been changed from the Federal Advisory Council to the Federal Hospital Council for the reason that its functions, the committee points out, are not merely advisory. Provision is made for the appointment by the council of special advisory and technical committees. The membership of the council has been modified to include three members to represent consumers of hospital services, who must be persons familiar with the need of hospital services in urban or rural areas.

During the course of the hearings on the bill, representatives of the Association suggested the advisability of including a provision, similar to the one contained in the Lanham act, to make it clear that federal control could not be exercised over the operation and maintenance of hospitals constructed under the program. Such a proscription is contained in the reported bill. To prevent the transfer of a hospital constructed under the program to a transferee not approved by the state agency, a provision has been added authorizing the United States to recover the federal percentage of the value of the hospital at the time of the transfer. A similar authority may be exercised if a nonprofit hospital ceases to remain in that category.

A reservation to the favorable report of the committee was filed by its chairman, Senator James E. Murray of Montana, a co-sponsor of the Wagner-Murray-Dingell bill. Senator Murray expressed the belief that the hospital bill includes a "bad and dangerous administrative arrangement" in that it assigns certain essential administrative functions to the Federal Hospital Council; that the bill devolves too much authority on the states with respect to the use of federal funds, "a dangerous and unwise proposal," and that federal regulatory powers should be extended over the operation and maintenance of hospitals. He emphasizes a conviction that S. 191 has only limited value and urges the enactment of legislation to solve the problem of paying for hospital and medical costs along the lines which Senator Wagner and he have worked out in S. 1050, "by broadening and strengthening the social security program."

The reported bill presents ample evidence of the desire of the Senate committee to offer a constructive program to be administered under proper safeguards. In the words of the committee report, "seldom has a subject received more careful consideration by any committee of the Congress than has the pending measure."

DO PIGEONS SPREAD VIRUS PNEUMONIA?

Extensive surveys of pigeon lofts and sampling of the pigeon populations throughout the country have shown that from 20 to 40 per cent of pigeons have in their serums antibodies which indicate that they have been at some time infected with the virus of ornithosis. Necropsies made on the bodies of pigeons and inoculation tests on mice with emulsions of the tissues of the spleen and of the kidney have shown that a variable percentage of pigeons may actually have living virus in the body. However, only a relatively small percentage of all pigeons are "open" carriers—that is to say, give off the virus in such form that they might infect other pigeons or human beings. Studies made by the George Williams Hooper Foundation of the University of California show that discharge of virus from the bowel of the pigeon is quite irregular and that many pigeons are "closed" carriers and noninfectious although serum positive.

When pigeons are crowded in lofts or cages, the latent infections may temporarily relapse into clinical infections and there may be massive shedding of the virus. The droppings in such cages remain infectious. When the material becomes dry, it is readily dispersed into the air by the fluttering birds. Therefore lofts in backyards or receiving pens for racing pigeons are much more likely to be foci for dissemination of infectious material than are the wild pigeons in city parks and around public buildings.

Danger to the human being comes from intimate contact with pigeons such as occurs when cleaning dirty lofts or when standing close to cages in which racing pigeons are received. Evidence indicates also that the picking up of sick pigeons in the park, bringing the birds home or killing and cleaning pigeons for food has likewise been followed by human infection with ornithosis. Apparently, then, it is possible for a human being to become infected from inhaling virus in dusts of streets or parks where flocks of pigeons congregate and their droppings soil the surroundings. However, actual studies seem to show only an exceedingly few cases that may have developed in this manner.

At present authorities in epidemiology are convinced that the risk is not significant and that the sensational, irresponsible, speculative publicity that has recently appeared in newspapers in some of our large cities is not warranted by any scientifically established evidence. Moreover, studies have been made which indicate that other species of birds are likewise carriers and shedders of viruses like those of psittacosis. Apparently these birds have not come under the suspicion of public health authorities.

In recent years great numbers of cases of atypical pneumonia due to virus have been reported all over the United States. Many of these cases have occurred in areas like camps and barracks where contact with pigeons is minimal, if it occurred at all. Despite the demonstration that some cases of human virus pneumonia have seemed to follow association with pigeons, the authorities do not believe that this represents the main method of spread of the disease. Apparently direct contact between human beings is the method by which most of the cases occur.

The proposal has been made that all the wild pigeons of large cities be eliminated. Until the statistics in any city present conclusive evidence that human infections due to exposure to pigeons in the streets and parks are fairly common, such action is not warranted. What assurance can there be that pigeons will not reinvade cities after the original pigeons are removed? Obviously backyard pigeon lofts and pens containing racing pigeons and homing pigeons are not affected by indiscriminate destruction of wild pigeons. Furthermore, removal of the pigeons will not in any way minimize the possibility that parrakeets, love birds, canaries and other birds and fowl act as reservoirs for viruses.

MENKIN'S ANTINECROSIN (ECLAMPSIA ANTITOXIN)

In 1940 Smith [1] of the Fearing Research Laboratory, Brookline, Mass., demonstrated that the normal human menstrual discharge is highly toxic for rats and rabbits. Subsequent studies [2] have shown that its toxicity varies in direct proportion to the amount of endometrial débris. From this Smith concludes that the toxin is probably a specific autolytic product of the endometrial cells. The toxin is apparently a euglobulin. This euglobulin is highly antigenic for rabbits, giving rise to an antitoxic serum that will protect rats from multilethal doses of menstrual discharge.

While this work was in progress, Menkin [3] of Harvard Medical School reported the presence of a similar toxic euglobulin in canine inflammatory exudate. For this toxin he proposed the name "necrosin." He found subsequently that necrosin could be fractionated by differential solubility methods. One of the fractions is a nontoxic pyrogenic factor, for which he proposed the name "pyrexin." He found that pyrexin is absent from normal blood serum but is present in appreciable amounts in the serums and urines of animals with a concomitant inflammation.

Parallel tests [4] between human menstrual toxin and canine necrosin have shown that within the limits of the experimental error the two substances are qualitatively and quantitatively identical. On subcutaneous injection both will produce death within forty-eight

1. Smith, O. W., and Smith, G. V.: Proc. Soc. Exper. Biol. & Med. **44**: 100 (May) 1940.
2. Smith, O. W., and Smith, G. V.: Proc. Soc. Exper. Biol. & Med. **55**: 285 (April) 1944.
3. Menkin, Valy: Chemical Basis of Injury in Inflammation, Arch. Path. **36**: 269 (Sept.) 1943; Chemical Basis of Fever with Inflammation, ibid. **39**: 28 (Jan.) 1945.
4. Smith, O. W., and Smith, G. V.: Proc. Soc. Exper. Biol. & Med. **59**: 116, 1945.

hours in 19-21 day old rats. The pathologic findings in rats receiving lethal doses of the two euglobulins are identical. Given intravenously to rabbits both are pyrogenic, small amounts causing a 2.5 to 5 degree F. rise in rectal temperature by the end of three hours. Both will liquefy the human fibrin clot. Both are antigenic for rabbits, inducing the production of antitoxins and precipitins and giving 100 per cent identical cross reactions. Smith considers this conclusive evidence of the complete identity of his human menstrual toxin and Menkin's canine necrosin.

Assuming this identity, Menkin's necrosin antiserum (precipitin) could be used for the detection of menstrual toxin in human tissues and body fluids. Such an anticanine serum presumably would not give interfering cross reactions with normal human tissue products. Using this antiserum, Smith [5] found that factors identical with menstrual toxin not only are present in the circulating blood of menstruating women but also are present in even higher titer in the bloods of preeclampsia and eclampsia patients. The substance, however, is absent from the serums of normal nonmenstruating and normally pregnant women.

Since Menkin's necrosin antitoxin will prolong the survival time of rats after multilethal doses of menstrual toxin, its possible therapeutic value in human eclampsia is now under investigation. A similar protective substance has been found in the pseudoglobulin fraction of human menstrual discharge and in the venous serums of menstruating and eclampsia patients. This human antitoxic pseudoglobulin is being further investigated as a possible therapeutic agent.

5. Smith, O. W., and Smith, G. V.: Proc. Soc. Exper. Biol. & Med. **59**: 119 (June) 1945.

Current Comment

WAR MEDICINE BECOMES OCCUPATIONAL MEDICINE

By action of the Board of Trustees of the American Medical Association the periodical known as *War Medicine*, published under the joint auspices of the American Medical Association and the Division of Medical Sciences of the National Research Council, will be discontinued with the issue for December 1945. In its place the Board of Trustees has authorized the publication of the periodical to be known as *Occupational Medicine*, designed to serve advancement in the field of prevention and treatment of disease conditions occurring to workers in every type of occupation and industry. An editorial board is in process of selection and will be announced just as soon as the Board of Trustees has taken action and those invited to serve have accepted the appointments. *Occupational Medicine* will not be the specific organ of any association or group, although it will have the advantage of material developed through the Council on Industrial Health of the American Medical Association. Several members of the Council on Industrial Health have already consented to become members of the editorial board of the new periodical. In general makeup the new publication will include, as do the other specialistic periodicals published by the Association, original contributions, even of monographic scope, covering causes, diagnosis, pathology, prevention, treatment and indeed every phase of disease related to occupation. Included also will be new investigations concerned with work of personnel departments in industry, such as the effects of emotions, boredom and other psychologic problems. The utilization of mass technics in roentgenology for the detection of tuberculosis, the preplacement examinations designed to adapt the job to the physiologic condition of the worker, the causes of absenteeism and the use of occupation for rehabilitation of the handicapped are further examples of subjects to be considered. *Occupational Medicine* will also include abstracts of the important current medical literature related to occupational health and disease, also occasional editorials, book reviews, news and selected collective reviews on topics of current interest.

FOREIGN MARKETS AND AMERICAN DRUGS

A manual entitled "Medicinal Products—United States Equivalents and Alternatives," recently released by the Department of Commerce, presents in Spanish and Portuguese the American equivalents and alternatives for German medicinal products. The document lists in tabulated form the names under which the preparations are sold in Latin American countries, their composition, equivalents and alternatives in the United States and U. S. manufacturers and suppliers. Included are biologics, alkaloids and other chemicals, as well as vitamins, glandular products and many specialties. The information is of value to interested physicians and other scientists and to the drug and pharmaceutical industry. The American drug industry is becoming increasingly aware of the role it can assume in extension of American medicine to other nations. Those who believed Germany held chemical superiority in the Spanish Americas will be surprised to learn of the influence exerted by the drug industry of the United States. The purpose of the manual is to permit the profession in Latin America to become aware of the availability of medicinal products, their brand names and manufacturing sources, or the equivalent alternative available in the United States. Copies of the manual may be obtained from the Superintendent of Documents, Washington 25, D. C., or from any Department of Commerce field office at 50 cents each. The chief of the Drugs and Pharmaceuticals Unit, Bureau of Foreign and Domestic Commerce of the Department of Commerce, who was primarily responsible for the accumulation of the information in the manual, has emphasized elsewhere [1] the possibilities in foreign drug markets. He insists that a $100,000,000 postwar foreign outlet is feasible and he believes that more firms could and should share in this market.

1. Delahanty, T. W.: Small Firms Should Share in Foreign Drug Markets, Foreign Commerce Weekly **20**: 3 (June 30) 1945.

BED REST IN TUBERCULOSIS

Since Dock [1] emphasized that prolonged rest in bed during illness is not always salutary, numerous writers have critically examined the indications and contraindications in various diseases. Tuberculosis, the disease in which prolonged bed rest has been the remedy *par excellence*, has apparently received little consideration in these discussions. Now Peck and Willis [2] have evaluated bed rest in the treatment of tuberculosis. An analysis of 751 consecutive necropsies indicates the relative insignificance of the one great danger stressed for bed rest, namely pulmonary embolism. The evils that inhere in bed rest, Peck and Willis believe, are in its misapplication. If the diseased area is accurately localized, especially if cavity is present, and if the bedfast patient lies at intervals throughout the day in comfortable but proper postures for facilitating drainage, secretions are raised with a minimum of cough or without cough; thus the most potent cause of intracanalicular spread is abolished. Inherent in the success of bed rest as therapy is recognition of the emotional maladjustment of the average new and long term patient. When the physician understands the needs of the patient and is willing to take the time to explain and repeat and convince the patient of the value of the scheme, the success of such treatment is greatly enhanced. Bed rest, to be successful, must be correlated properly with collapse therapy. Good bed rest "is a precise method of treatment with clearcut specifications and is based on three fundamental principles: mental repose, muscular relaxation and adequate drainage."

1. Dock, William: The Evil Sequelae of Complete Bed Rest, J. A. M. A. **125**: 1083 (Aug. 19) 1944.
2. Peck, W. M., and Willis, H. S.: Bed Rest in Tuberculosis: Its Dangers and Proprieties, Am. Rev. Tuberc. **52**: 15 (July) 1945.

NBC BROADCASTS RESUMED

On page 817 in this issue of THE JOURNAL appears a notice of the resumption of network broadcasting by the American Medical Association in cooperation with the National Broadcasting Company over the networks of the latter and affiliated stations. This will be the eleventh consecutive year of nationwide dramatized health broadcasts on the NBC networks. The dramatized broadcasts were preceded by two years of radio talks on the same networks. The American Medical Association has broadcast continuously since 1923, using various Chicago stations and several networks. Broadcasts have sometimes been as frequent as twice a day, but experience has shown that once a week, except during special events such as annual meetings, is sufficient. During this time numerous local broadcasts by state and county medical societies have been carried out. The American Medical Association Bureau of Health Education acts as a clearing house for assembling, editing and redistributing radio talks originated locally so that the best of these talks are made available throughout the nation. In 1943 the Bureau began a program of electrical transcriptions, of which there are now seventy-five programs available and additional ones in preparation; these transcriptions are estimated to be on the air an average of eighty-five or more times weekly. This coverage by radio represents not only an important phase of health education of the public but also a large contribution from the broadcasting industry to public welfare. The time made available for these broadcasts has been furnished gratis on the theory that the station provides the facilities and the medical profession the materials for a joint public service in accordance with the provisions of the Federal Communications Act under which radio stations are obliged to broadcast "in the public interest, convenience and necessity." The cooperation by radio in health education has gone beyond what radio might reasonably have considered its obligations and has constituted genuine and valuable cooperation which the public should appreciate. Medical men and other scientists have been sharply critical of radio as, indeed, they have been of the press and other advertising mediums for the dissemination of false and misleading advertising of a medical and health character. Radio, often subjected to criticism, should also be given due credit for the contributions it has made to the cause of health education.

EFFECT OF STREPTOMYCIN ON BACTERIA IN URINARY INFECTIONS

Helmholz [1] points out that the sulfonamide compounds, while effective against most bacteria found in urinary infections, are ineffective against Streptococcus fecalis and Pseudomonas aeruginosa. Waksman and his associates showed that streptomycin has strong bactericidal action on both gram negative and gram positive bacteria, including Pseudomonas aeruginosa. Elias and Durso have shown that streptomycin given by the intravenous or intramuscular route is excreted in high concentration in the urine. Helmholz performed experiments in vitro with urine from a patient who had been receiving 2,000,000 units daily of streptomycin for weeks. This urine contained as high as 1,330 units of streptomycin per cubic centimeter. The urine was Seitz filtered and controlled for sterility. The amount of drug carried over in 0.5 cc. of urine when diluted ten times in 5 cc. of agar was sufficient to prevent the development of any colonies on the plates made immediately after the inoculation of urine. The use of 100 units of streptomycin per cubic centimeter of urine with inoculations of fewer than 2,000 bacteria per 0.5 cc. results in complete sterilization in twenty-four hours. The undiluted urine killed the two most resistant bacteria, two strains of Streptococcus fecalis and Pseudomonas aeruginosa, one hour after inoculation. Helmholz concludes that 100 units per cubic centimeter of streptomycin is probably sufficient to reduce rapidly the number of any bacteria found in urinary infections and that 235 units, which is only about one fifth of the concentration that can be obtained in the urine, is sufficient even with massive inoculation to sterilize the infected urine. At concentrations of 1,330 units per cubic centimeter the two most resistant bacteria are killed within one hour. In view of these results, Helmholz believes that streptomycin should prove to be the most useful urinary antiseptic so far developed.

1. Helmholz, H. F.: The Effect of Streptomycin on Bacteria Commonly Found in Urinary Infections, Proc. Staff Meet., Mayo Clin. **20**: 357 (Oct. 3) 1945.

MEDICINE AND THE WAR

ARMY

PROGRAM FOR DEFERRED RESIDENTS OF MEDICAL CORPS

Following is the modification of the program for deferred residents of the Medical Corps, published recently in War Department Circular No. 296, which will be effective until March 28, 1847 unless sooner rescinded or superseded:

1. General and Eligibility. *a.* Medical Corps officers on active duty as explained below are eligible for release from active duty to accept residencies or fellowships in civilian hospitals. Upon their release, they must be replaced by a Medical Corps officer now on inactive duty and serving as a resident or fellow in the hospital to which the officer being released will report for postgraduate training.

b. Criteria for eligibility:

(1) Must have been on active duty prior to Jan. 1, 1943.
(2) Must be under 40 years of age.
(3) Must not be eligible for release from active duty under other War Department directives or army regulations.

2. Applications. Procedure for filing:

a. Application for determination of eligibility for release should be addressed to the Adjutant General (attention Officers' Branch, Separation Section, Munitions Building, Washington, D. C.) through military channels. Application should be accompanied by a true copy of WD AGO form 178-2 or 66-3 in duplicate with a 2 by 2 inch passport type photograph attached.

b. A statement must accompany the application indicating that the criteria mentioned in paragraph 1 *b* apply. In addition the following information must be furnished:

(1) Name of hospital in which residency or fellowship is desired. In this connection, first consideration should be given to applying for a residency or fellowship in the hospital in which the officer received his original training if the hospital has Medical Corps officers on an inactive status serving as residents or fellows.
(2) A second and third choice of hospital will be given.
(3) In the event applicant has already received an appointment from a hospital this fact will be clearly stated, giving the date the appointment was received, the type of residency or fellowship and the period of time during which the appointment will be effective.
(4) No hospital should be named which does not have Medical Corps officers on an inactive status serving as residents or fellows.

3. Forwarding of Applications. *a.* All applications will be forwarded through military channels to the Adjutant General (attention Officers' Branch, Separation Section, Munitions Building, Washington, D. C.) for forwarding to the Surgeon General regardless of whether the application is approved or disapproved by forwarding commander.

b. The first forwarding indorsement will include the following statements:

(1) Approval or disapproval.
(2) There is (or is not) an overall surplus in the command jurisdiction of officers qualified and available to fill the duty assignments for which the officer concerned is qualified.
(3) A replacement will (or will not) be required and is (or is not) readily available.
(4) Services of the officer have been such as to entitle him to separation under honorable conditions.
(5) No disciplinary action or reclassification proceedings under AR 605-230 are pending or appropriate in the case.
(6) No hospital disposition board or Army retiring board proceedings are pending or believed to be appropriate.

c. Subsequent forwarding indorsements will include statements of approval or disapproval and such other remarks as may be deemed pertinent.

4. Action of the Surgeon General's Office and Procurement and Assignment Service, War Manpower Commission. *a.* Upon receipt and approval of the application by the Surgeon General, the application will be noted and forwarded to the Procurement and Assignment Service, War Manpower Commission, which service will act as intermediary agent between the War Department and the civilian hospital. The approval or disapproval of the application by the civilian hospital will be returned to the Surgeon General through the Procurement and Assignment Service, War Manpower Commission, accompanied by the name of a Medical Corps officer on inactive duty, who will be released by the hospital for active military service.

b. Upon receipt of an approved application from the Procurement and Assignment Service, War Manpower Commission, the Surgeon General will forward the papers to the Adjutant General (attention Officers' Branch, Separation Section, Munitions Building, Washington, D. C.) giving the date the separation is to become effective and concurrently advise the applicant through military channels of the approval of the application and the date the applicant will be released from duty.

c. Concurrently with action taken in *b* above, the Surgeon General will request that orders be issued assigning the Medical Corps officer who is serving as a resident or fellow on an inactive status to active duty. The effective date of active duty will be ten days later than the date at which medical officer released from active service will report to the hospital.

CONVENTION HELD AT SCHOOL OF AVIATION MEDICINE

The Army Air Force School of Aviation Medicine, Randolph Field, Texas, was the scene of part of the Texas Surgical Society's two day convention in San Antonio recently. The program included a series of lectures and discussions by members of the AAF School of Aviation Medicine staff, an exhibit of specialized air force equipment and medical drawings of surgical technics. Col. Fratis L. Duff, assistant commandant, opened the afternoon's schedule with a discussion of the activities of the AAF School of Aviation Medicine during the war. A paper on the research program and problems was presented by Major Herman S. Wigodsky, acting director of research.

"Experimental Production of Injuries by Deceleration" was the topic of a film-lecture given by Capt. Harry D. Kingsley. Major George M. Hass, chief of the department of pathology, addressed the society on the nature of injuries to personnel in aircraft accidents.

Major Randolph L. Clark Jr., under whose direction the program was planned, explained the surgical services of the AAF School of Aviation Medicine and illustrated his remarks with reproductions of medical photographs used in the teaching of aviation medical examiners. Cooperating with Major Clark in organizing the school's role in the conference was the society's secretary, Dr. Walter Stuck, San Antonio, Texas.

FORTY-NINTH FIELD HOSPITAL COMMENDED

The 49th Field Hospital, commanded by Major Thomas LaBarbera, Brooklyn, was recently awarded the Meritorious Service Unit Plaque "for superior performance of duty in the accomplishment of exceptionally difficult tasks during the period of Jan. 1 to May 8, 1945." The 49th gave medical and surgical support to the 66th Infantry division besieging the heavily defended ports of St. Nazaire and Lorient, Brittany, France. Functioning under arduous field conditions, the unit brought on the spot definitive treatment that saved hundreds of lives. Doctors, nurses and corpsmen worked seven days, and working days frequently ran into twenty-four hours. The hospital was under constant threat of German artillery fire. During this mission the unit was compelled to move 5 miles to the rear while continuing full capacity treatment of battle casualties. The unit is now operating station hospitals at the Calais Staging Area, Marseilles, and at Lyons, France.

APPOINTED HONORARY CONSULTANT TO THE SURGEON GENERAL

Comdr. Arnold F. Emch, who recently was placed on inactive duty after three years as special assistant to the Surgeon General and chief of the Administration Division of the Bureau of Medicine and Surgery, has been appointed honorary consultant to the Surgeon General and to the Secretary of the Navy. Vice Admiral Ross T. McIntire, Surgeon General of the Navy, expressed his satisfaction in having Dr. Emch available for management consultation in view of his exceptional services to him and to the Navy Medical Department.

PLAQUE AWARDED TO 381st STATION HOSPITAL

The 381st Station Hospital was recently awarded the Meritorious Service Unit Plaque for superior performance of exceptionally difficult tasks during the period July 6, 1945 to Sept. 25, 1945. The hospital is under the command of Lieut. Col. H. B. Hermann, New York; Major W. R. Carman, Islip, Long Island, chief of medical service, and Major Harry Martz, Birmingham, Ala., chief of surgical service.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Barfield-Carter, M., Major, 805 Woodward Bldg., Birmingham.
Donald, Joseph M., Lt. Col., 2900 Surrey Rd., Birmingham.
Douglas, Joseph W., Capt., Brewton.
Dunning, Guy J. Jr., Capt., Linden.
Hendrix, Richard W., Lt. Col., MacMillan St., Evergreen.
Holler, Carl A. F., Capt., Box 190, Fort Payne.
Johnson, George E., Major, Uriah.
Lane, Thomas H., Capt., T. C. I. Hosp., Fairfield.
Lary, John H., Major, 407 Madison St., Huntsville.
Linn, Julius E., Major, 2909 Thornhill Rd., Birmingham.
McGraw, Feliz J., Major, 1 S. 55th Pl., Birmingham.
Martin, John A., Lt. Col., 119 Gilmer Ave., Montgomery.
Meigs, James H., Major, 1209 Glenwood Terrace, Anniston.
Parker, Harry J., Capt., Madison.
Peterson, Edward J., Capt., St. Vincent's Hosp., Birmingham.
Timberlake, Landon, Major, 2121 Highland Ave., Birmingham.
Woodall, Paul S., Lt. Col., 201 Mount Ave., Birmingham.
Woodruff, Gerald G., Lt. Col., 620 Highland Ave., Anniston.

Arizona

Born, Ernest A., Capt., 310 S. Mount Vernon, Prescott.
Hinton, Joseph H., Capt., Fort Thomas.
Ketcherside, H. D., Major, 1006 Professional Bldg., Phoenix.

Arkansas

Anderson, Powhattan R., Capt., 1923 Main St., Little Rock.
Champion, Walton T., Major, Gillett.
Dunaway, Edwin L., Major, 1712 Scott, Conway.
Mack, Joseph J., Col., Little Rock.
Patton, Doyle L., Capt., 530 W. Block, Eldorado.
Smith, James T., Capt., P. O. Box 276, Paris.
Verser, Joe, Capt., Harrisburg.

California

Antonini, Charles J., Capt., 1413 38th Ave., San Francisco.
Asher, Leonard M., Major, 1901 Fairburn Ave., Los Angeles.
Badami, Anthony G., Capt., 1086 Camine Pablo, San Jose.
Brock, Burton K., 1st Lt., 236 Michigan Ave., Fresno.
Cawley, John J. Jr., Capt., 2003 Lester, Bakersfield.
Cecil, James J., Major, Patton State Hosp., Patton.
Chernow, Marvin L., Major, 3752 Woolwine Dr., Los Angeles.
Crowley, Francis L., Major, 519 Monte Vista Ave., Oakland.
Duncan, John J., Capt., 11123 Ophir Dr., Los Angeles.
Elliot, James S., Major, 1019 Hampshire St., San Francisco.
Elzey, Neil D., Capt., 1353 2d Ave., San Francisco.
Faier, Herman I., Major, 1930 Wilshire Blvd., Los Angeles.
Falk, Charles C. Jr., Major, 507 F St., Eureka.
Ferris, George J., Capt., 1588 36th Ave., San Francisco.
Haskell, Maurice M., Major, 1501 Pioneer Blvd., Artesia.
Hoffman, Ralph L., Capt., 3661 Pringle St., San Diego.
Houloose, James, Major, 3982 Gaviota Ave., Long Beach.
Hrenoff, A. K., Major, 2102 Golden Gate Ave., San Francisco.
Jacobus, W. L. Jr., Lt. Col., 3757 Hepburn Ave., Los Angeles.
Lim, Kwong, Capt., 1243 Minnesota St., San Francisco.
McCandliss, Charles H., Capt., 5142 Escalon Ave., Los Angeles.
McCreary, J. H., Capt., 901 S. Kingsley, Los Angeles.
McCullock, Robert J., Capt., 57 St. Joseph Ave., Long Beach.
Marchus, Donald B., Lt. Col., 1726 Market St., Redding.
Marks, Joseph H., Capt., 4340 Leimert Blvd., Los Angeles.
Marquis, Harold H., Major, 97 San Pablo Ave., San Francisco.
Maximov, N. G., Major, 2710 California St., San Francisco.
Mourer, Lyle A., Major, 5218 Angeles Vista Blvd., Los Angeles.
Ogden, Roderick A., Major, 2824 Park Way, Bakersfield.
Palmer, Alfred M., Capt., 625 Scott St., San Francisco.
Phetteplace, Dale O., Major, 806 N. Spadra Rd., Fullerton.
Reynolds, Stephen, Major, 230 El Bosque Rd., Santa Barbara.
Rose, Sidney J., Capt., 1520 E. Firestone Blvd., Los Angeles.
Rovane, John W., Capt., Yolo County Hosp., Woodland.
Schade, Frank F., Col., 1800 W. 6th St., Los Angeles.
Schmidt, Allen R., Capt., 2007 Wilshire Blvd., Los Angeles.
Schroeder, Ralph L., Capt., 443 Gerona, San Gabriel.
Schuldberg, Irving I., Capt., 6509 Hayes Dr., Los Angeles.
Schureman, Oliver P., Capt., 1307 Stradford Ave., Pasadena.
Spencer, James A., Capt., 2280 Pacific Ave., San Francisco.
Stansbury, John R., Capt., General Hosp., Santa Barbara.
Sweet, Norman J., Major, U. of Calif. Hosp., San Francisco.
Topic, John R., Capt., 312 Broad St., Nevada City.
Walker, Ralph J., Lt. Col., 4265 Atlas Ave., Oakland.
Weizer, Ernest A., Major, P. O. Box 831, Oakdale.
Wilmes, Malcolm N., Major, 523 Bartlett Ave., Woodland.
Wyborney, Eugene H., Capt., Riverside Co. Hosp., Arlington.

Colorado

Bradley, John W., Major, 2212 Wood Ave., Colorado Springs.
Brethower, Norman A., Capt., 606 S. 2d St., Montrose.
Fee, Edward P., Capt., 533 Ralson, Arvada.
Hick, Lawrence L., Major, Delta.
Ralston, Robert J., Capt., Holyoke.

Connecticut

Chipman, Sidney S., Major, 6 Stevens St., Norwalk.
Conway, Herbert, Lt. Col., 225 Ocean Dr. West, Stamford.
Friedman, Emerick, Capt., Norwich State Hosp., Norwich.
Goldschmidt, Myer, Capt., 10 Grove Hill, New Britain.
Haas, William R., Col., 789 Howard Ave., New Haven.
Krosnick, Gerald, Major, 574 Elm St., New Haven.
Meyers, Royal A., Major, 162 Main St., Watertown.
Rogers, Robert P., Lt. Col., 111 North St., Greenwich.
Scoville, William B., Major, 334 N. Steele Rd., W. Hartford.
Simses, John P., Capt., 446 Stratfield Rd., Bridgeport.
Slater, Daniel, Capt., 1100 Dixwell Ave., Hamden.
Smith, William B., Lt. Col., 91 Center St., Wethersfield.
Sollosy, Alexander, Capt., 365 McKinley Ave., Bridgeport.
Unsworth, Arthur C., Lt. Col., 179 Allyn St., Hartford.

Idaho

Bovenmyer, Earl S., Major, 243 E. 6th St., Pocatello.
Durose, Fred W., Capt., P.O. Box 172, Bonners Ferry.
Guyett, Harvey E., Capt., 562 Jay St., Idaho Falls.
Holstein, Theodore, Capt., Route 2, Boise.
Hunter, Lewis B., Capt., 111 Bank St., Wallace.
Rulien, Ward A., Major, Wendell.
Schow, Floyd W., Major, Hailey, Blaine County.
Van Dorn, Robert W., Major, Coeur D'Alene.
Wendle, Cornelius C., Major, Sandpoint.

Illinois

Droegemueller, William H., Major, 116 Burnham Pl., Evanston.
Ellwood, Walter W., Lt. Col., 1525 E. 53d St., Chicago.
Epstein, Jacob M., Capt., 5404 S. Woodlawn Ave., Chicago.
Farinacci, Maurice G., Capt., 5519 S. Tolman, Chicago.
Giganti, James J., Capt., 2614 Iowa St., Chicago.
Ginsberg, Robert S., Capt., 5220 Drexel Blvd., Chicago.
Golden, Jacob S., Capt., 531 Briar Pl., Chicago.
Goodhart, Jacob A., Capt., 6557 Francisco Ave., Chicago.
Graham, John P., 1st. Lt., Avon.
Herron, Earl, Major, 162 E. Ohio St., Chicago.
Hirsh, Edwin I., Capt., 3658 N. Pinegrove Ave., Chicago.
Hoffman, Samuel J., Lt. Col., 3800 Lake Shore Dr., Chicago.
Holvey, Ervin H., Capt., 347 So. Harvey St., Oak Park.
Horning, V. H. H., Capt., 1752 New England Ave., Chicago.
Hume, Albert T., Major, 400 E. Washington St., Monticello.
Jakubowski, Casimir L., Capt., 1324 N. Ashland Ave., Chicago.
Johnson, Lowell R., Capt., 1424 N. Oak St., Danville.
Knowles, Donald B., Capt., 7409 Clyde Ave., Chicago.
Koenigsberg, Noah M., Major, Bellflower.
Kudolla, Charles R., Capt., 4958 Lawrence Ave., Chicago.
Lampert, Elmer G., Capt., 625 S. Wheaton Ave., Wheaton.
Larrabee, John A., Capt., 5724 Harper Ave., Chicago.
Lemberg, Louis, Capt., 2900 W. Fitch Ave., Chicago.
Luke, Edward A., Major, 710 Center St., Waukegan.
McDowell, Mordecai M., Major, 1207 E. Main St., Danville.
Mammoser, Lambert F., Capt., 6127 NW. Hwy, Chicago.
Mason, John C., Capt., 109 N. Chicago, Rossville.
Millas, John G., 1st. Lt., 1607 S. 51st Ave., Cicero.
Mizock, Albert A., Capt., 3952 W. Jackson Blvd., Chicago.
Motier, Jean H., Capt., 7427 S. Wentworth Ave., Chicago.
Mullen, Timothy F., Lt. Col., Seneca.
Musick, Rowland H., Capt., 904 14th Ave., Mendota.
Nash, John V., Major, 5412 Ferdinand St., Chicago.
Nelson, Clayton, E. J., Capt., 3822 N. Hoyne Ave., Chicago.
Partridge, Milton H., Capt., 666 St., John St., Elgin.
Pilot, Isadore, Major, 507 Briar Pl., Chicago.
Post, John, Lt. Col., 5811 Dorchester Ave., Chicago.
Puestow, Charles B., Col., 874 Ridgewood Dr., Highland Park.
Ranney, Alden B., Capt., 232 S. Euclid Ave., Oak Park.
Reierson, Peter A., Major, 1336 S. Newberry St., Chicago.
Schoolman, Joseph G., Capt., 4742 Ingleside Ave., Chicago.
Stephen, Robert J., Capt., 15 N. Cagwin Ave., Joliet.
Stephenson, George W., Major, 1516 E. Grove St., Boomington.
Stuart, Carroll W., Major, 330 N. Austin Blvd., Oak Park.
Sutton, Robert M., Major, 107 Moss Ave., Peoria.
Sweeney, Anthony J. Jr., Major, 1770 Arthur Ave., Chicago.
Taylor, James H., Capt., 200 Henson St., Villa Grove.

PHYSICIANS SEPARATED FROM SERVICE

Illinois—Continued

Thrift, Chester B., Major, 5804 W. Chicago Ave., Chicago.
Tinsley, Milton, Major, 3304 Lexington St., Chicago.
Turley, Vigo T., Major, 1 Edgwood Court, Decatur.
Utz, Walter J., Capt., 2415 West Fifth St., Peru.
Vitacco, John J., Capt., 1746 Nashville Ave., Chicago.
Walker, A. E., Major, 8132 Drexel, Chicago.
Ward, Carl F., Major, 601 W. Henry St., Pontiac.
White, Minor E., Lt. Col., 1121 S. Myrtle Ave., Kankakee.
Wiltrakis, George A., Lt. Col., 4330 Washington Blvd., Chicago.
Wood, Oliver K. M., Capt., Ipava.

Kansas

Cauble, Wilbur G., Capt., Benedict.
Evans, Farris D., Major, Conway Springs.
Forman, Louis H., Capt., St. Francis Hosp., Wichita.
Girod, Charles I., 1st Lt., Cambridge.
Kamish, Robert J., Major, Halstead.
Leiker, Raymond J., Capt., 2924 Broadway, Great Bend.
Marker, Daniel I., Major, 1414 Fairchild St., Manhattan.
Mitchell, John C., Major, 900 Custer, Salina.
Morgan, John L., Lt. Col., 712 Neosho St., Emporia.
Moser, Ernest C., Capt., 624 Iowa St., Holton.
Schnee, Benjamin, Capt., 317 Walnut St., Leavenworth.
Veatch, Harry J., Major, 605½ N. Broadway, Pittsburg.
Wakeman, Don C., Lt. Col., 1324 Topeka Ave., Topeka.

Maine

Geyerhahn, George, Capt., 6 Albany St., South Portland.
Ham, Joseph G., Capt., 105 Pine St., Portland.
Holt, Charles L., Capt., 29 Deering St., Portland.
Merrick, John R., Capt., 26½ Sewall St., Augusta.
Milliken, Howard H., Capt., 104 Frances St., Portland.
Tabachnick, Henry M., Major, 110 Park Ave., Portland.
Towne, Charles E., Major, Waterville.

New Mexico

Bickel, Robert D., Lt. Col., 205 East Hill Ave., Gallup.
Foster, Elden H. H., Lt. Col., Vet. Adm. Fac., Albuquerque.
Hoover, Thomas B., Major, Tucumcari.
Johnson, Hanson B., Capt., Box 6, Hot Springs.
Mendelson, R. W., Lt. Col., 1016 Parkland Pl., Albuquerque.
Wier, David T., Major, Box 474, Belen.

New York

Anthony, Eugene W., Capt., 868 Oneida St., Fulton.
Averill, John B., Capt., Lake Mahopac.
Bergamini, Herbert M., Lt. Col., 101 E. 89th St., New York.
Bernstein, Jacob C., Capt., Broadway, Greenlawn.
Campanella, Paul J., Capt., 415 Broadway, Fulton.
Campbell, Darrell A., Major, 111 Union St., Schenectady.
Darby, Isaac K., Capt., 1 St. Nicholas Ter., New York.
Davenport, Frank S., Capt., Averill Pk., New York.
Diefendorf, R. O., Capt., % Major J. E. Diefendorf, West Point.
Dundee, John C., Capt., 3438 81st St., Jackson Heights.
Ennis, David, Capt., 29 Bear St., Lyons.
Fatcheric, John A., Capt., 300 S. Lowell Ave., Syracuse.
Ferrara, Joseph D., Capt., 163 E. 81st, New York.
Fiegoli, Nicholas F., Capt., 1727 Hunt Ave., Bronx.
Fierro, Eugene A., Capt., 50-12 43d St., Woodside.
Fisk, Shirley C., Capt., 10 East 90th St., New York.
Fox, Sheldon, Capt., 238 West End. Ave., Brooklyn.
Freese, Carl F., 1st. Lt., 62 Wlena Ave., Freeport.
Frick, Max, Major, 231 East 76th St., New York.
Friedman, Hyman, Capt., 2140 Ocean Ave., Brooklyn.
Fulmer, Charles M., 1st. Lt., 109 W. Heman St., E. Syracuse.
Gardner, Thomas G., Major, Queens Gen. Hosp., Jamaica, N.Y. (or) 204 Highland Ave., Salamanca.
Gerner, Morris I., Major, 21-08 Newton Ave., Long Island.
Gibson, Thomas S., Capt., 15 East 36th St., New York.
Gillman, Louis, Capt., Queens GH, Jamaica.
Giordano, Albert, Capt., 2922 Grand Concourse, New York.
Giovannelli, Ronald, Capt., 77 W. Main St., Oyster Bay.
Gittleman, Solomon E., 1st. Lt., 647 March Ave., Brooklyn.
Gold, Alex E., Capt., 234 Greenwich St., Hempstead.
Golden, Harold T., Major, 119 Mary St., Herkimer.
Golden, Theodore, Lt. Col., 220 W. 57th St., New York.
Goldman, Ephraim J., Capt., 225 Candee Ave., Syracuse.
Goodkin, George, Capt., 1665 Andrews Ave., New York.
Gordon, William C., Capt., 1359 York Ave., New York.
Gray, Philip, Capt., 484 Penna. Ave., Brooklyn.
Greene, John E., Major, 176 54 Kildare Road, Jamaica.
Greenhall, Armand L., Major, 685 West End Ave., New York.
Grodzicker, Harry, Capt., 549 Bedford Ave., Brooklyn.

New York—Continued

Griffin, Thomas E., 1st. Lt., 37 Niagara Falls Blvd., Buffalo.
Gundy, John E., Major, 20 Greenleaf St., Rye.
Hall, John B., Capt., 235 Hallock St., Jamestown.
Hamill, John A. C., Major, 55 Hillcrest Ave., Port Chester.
Hamilton, George C., Lt. Col., 537 Chenango St., Binghamton.
Hartstein, A. S., Capt., 61-80 80th St., Elmhurst, Queens.
Heath, F. K., Major, The Meadows, S. Road, Poughkeepsie.
Horan, William H., Capt., 9 Pickwick Rd., Manhasset.
Horne, Robert P., Capt., Skaneateles.
Horowitz, Isaac, Capt., 314 E. 193d St., Bronx.
Horowitz, Jacob, Capt., 143 W. 49th St., New York.
Howes, Clifford Eggleston, 1st Lt., Rocky Point, Long Island.
Iraci, Joseph P., Capt., 5444 101 St., Corona.
Itri, Francis V., 1st. Lt. 2383 83d St., Brooklyn.
Ittleman, Felix L., Major, 888 Montgomery St., Brooklyn.
Jacobs, Theodore T., Major, 100 High St., Buffalo.
Jacobs, Thomas P., Capt., 280 Beechmont Drive, New Rochelle.
Judelsohn, Louis, Major, 75 Fordham Drive, Buffalo.
Kaplan, Bernard I., Capt., 67 South Highland Ave., Ossining.
Katz, Abraham, Capt., 335 Cypress Ave., Bronx.
Kaywin, Louis, Capt., 71 St. Marks Pl., New York.
Klein, Daniel, Major, 3689 Bedford Ave., Brooklyn.
Konigsberg, Max S., Capt., 237 W. 233d St., New York.
Langsam, Sanford M., Capt., 1415 Motte Ave., Far Rockaway.
Lear, Phillip E., Major, 1240 E. 26th St., Brooklyn.
Leffert, Jacob, Capt., 10 Argyle Rd., Brooklyn.
Levin, Thomas, Major, 2325 University Ave., New York.
Leonidoff, Aleksei A., Col., Pendell Rd., Poughkeepsie.
Leslie, Robert J., Major, 2620 Glenwood Rd., Brooklyn.
Letterese, Thomas G., 1st. Lt., 2319 Grotona Ave., New York.
Levine, William, Capt., 754 Brady Ave., Bronx.
Levy, Jacob, Capt., 336 E. 91st St., Brooklyn.
Levy, Sidney, Capt., 1020 E. 16th St., Brooklyn.
Lewis, Ned A., Lt. Col., 53 Linden St., Brooklyn.
Liepmann, Hans W., Capt., Spring St., Monroe.
Lo Ponte, Joseph J., Capt., 2020 E. 3d St., Brooklyn.
McManus, Matthew P., Capt., 219-16 43d Ave., Bayside.
McMillan, James R., Capt., 303 East 20th St., New York.
McNeer, Gordon, Major, 644 Riverside Dr., New York.
Manganelli, Charles V., Major, 26 W. 61st St., New York.
Mangiaracina, C. C., Capt., 88-04 Woodhaven Blvd., Woodhaven.
Mansker, Joseph S., Capt., 2075 Wallace Ave., Bronx.
Marks, Jerome L., Major, Beth Israel Hosp., Stuyvesant Park, East New York.
Mele, Joseph M., Capt., 619 Jay St., Rochester.
Melton, Joseph, Capt., 1810 Nereid Ave., Bronx.
Meneely, John K. Jr., Major, Coeymans.
Myer, Clifton G., Major, 34 Catherine St., Lyons.
Oliva, Joseph J., Capt., 2901 170 St., Flushing.
Parise, Nicholas F., Capt., 10 Washington St., Brooklyn.
Pender, Patrick F., Capt., 2114 Genesee St., Utica.
Perillo, Louis A., Capt., 1927 Pilgrim Ave., New York.
Perl, Theodore, Capt., 225 Squires Ave., Endicott.
Piacentine, Pasquale A., Capt., 39-20 62d St., Woodside.
Pisani, Bernard J., Lt.Col., 130 E. 67th St., New York.
Porrazzo, Andrew P., Major, 366 Clinton St., Brooklyn.
Province, William D., Major, 622 W. 168th St., New York.
Rautenstrauch, Walter Jr., Major, 42-15 220th St., Bayside.
Roberts, Alfred E., Capt., Main St., Portland.
Romano, Michale J., Capt., 114 School St., Yonkers.
Rosner, Henry, Capt., 4824 Ave. I, Brooklyn.
Reid, Henry N., Capt., 1413 N. Madison St., Rome.
Rubbone, Mario D., Capt., 31-41 28th Rd., Long Island.
Rubin, Julius, Capt., 439 Sackman St., Brooklyn.
Rudner, Nathan, Capt., 3511 Putnam Pl., Bronx.
Ryan, David F., Capt., 61 Hildreth Pl., Yonkers.
Sachs, Elihu M., Major, 98 Riverside Dr., New York.
Schellenger, E. A. Y., Major, 33 Fithian Ave., Merchantville.
Schnittke, Sidney, Capt., 270 Convent Ave., New York.
Schussheim, Joseph, Capt., 3051 Ocean Ave., Brooklyn.
Senfeld, Sidney, Capt., 2122 Quentin Rd., Brooklyn.
Silvera, Salomon, Major, 7524 Bay Parkway, Brooklyn.
Smith, Harold B., Capt., 126 Rugby Road, Syracuse.
Smith, Joel F., Capt., 1799 Bedford Ave., Brooklyn.
Spinard, Walter I., 1st. Lt., 143 Keap St., Brooklyn.
Sprei, Emanuel, Capt., 143 West 96th St., New York.
Spritzer, Irwin I., Capt., 1414 E. 12th, Brooklyn.
Stagnitto, Rosario J., Capt., 482 Hawley St., Rochester.
Strutton, William R., Major, Rockland St. Hosp., Orangeburg.
Thompson, James B., Capt., Gen. Hosp., Rochester.
Vandow, Jules E., Capt., 339 E. 58th St., New York City.
Van Wagenen, William P., Lt. Col., Fishell Road, Rush.
Warres, Herbert L., Capt., 1987 Ocean Parkway, Brooklyn.
Zimmerman, Louis, Major, 340 St. Johns Pl., Brooklyn.

PHYSICIANS SEPARATED FROM SERVICE

North Dakota

Ivers, George U., Capt., 424 deLendrecie Bldg., Fargo.

Oklahoma

Barthold, Floyd T., Major, 530 E. Creek, McAlester.
Cowart, O. Hiram, Major, 115 W. 8th St., Bristow.
Lowrey, Robert W., Lt. Col., Gen. Del., Poteau.
Mohler, Eldon C., Lt. Col., 212 Community Bldg., Ponca City.
Morgan, Louis S., Capt., 128 Elmwood St., Ponca City.
Pollack, Simon, Lt. Col., 108 W. 6th St., Tulsa.
Rucks, W. W. Jr., Lt. Col., 301 N. W. 12th St., Oklahoma City.
Schnitman, Jacob, Capt., CCC Co., 3886, Gould.
Shorbe, Howard B., Major, 2708 N. W. 22d St., Oklahoma City.
Simon, John F., Lt. Col., 606 Columbia, Lawton.
Turner, Edwin C., 1st Lt., 711½ N. E. 16th St., Oklahoma City.

Oregon

Browne, Walter P., Capt., 2130 N. E. Knott St., Portland.
Burns, Edgar M., Lt. Col., 902 Stevens Bldg., Portland.
Hollenbeck, W. F., Lt. Col., 5360 S. W. Humphrey, Portland.
Lage, George H., 1st Lt., 2736 N. E. 25th, Portland.
Littlehales, Charles E., Major, 6615 S. E. 34th St., Portland.
McGowan, Gordon W., Capt., 1601 G St., The Dalles.
Moore, William J., Capt., 902 Lawnridge, Grants Pass.
Rawls, Noel B., Capt., Emanuel Hosp., Portland.
Robbins, Carl W., Lt. Col., 1273 Mill St., Eugene.
Schuster, Earl J., Capt., 302 5th Ave., Tillamook.
Vogt, Paul R., Major, 900 Trevitt St., The Dalles.

Pennsylvania

Agnew, Edward A., Capt., Jacksonwald.
Bell, Cyril B., Capt., West Side, Glen Campbell.
Butler, Claude H., Major, Waymart.
Colosi, Nicholas A., 1st Lt., 122 S. York Rd., Willow Grove.
Ellson, John V. Jr., Col., 48 Glendale Rd., Upper Darby.
Finegold, Joseph, 1st Lt., 5521 Raleigh St., Pittsburgh.
Gillespie, James T., Major, 3926 W. Ridge Rd., Erie.
Hawkins, Sumpter W., Capt., Abington Mem. Hosp., Abington.
Hazlett, Frank D., Major, 825 Allison Ave., Washington.
Katzman, Bertram, Capt., 17th & Summer Sts., Philadelphia.
Kazmierski, Joseph M., Capt., 335 Hancock St., Pittsburgh.
Lawson, Edward K. Jr., Major, 2533 Walnut St., Penbrook-Harrisburg.
Leavy, Philip Gerard, Major, 145 Stanton Court, Pittsburgh.
Lemon, Arden N., Lt. Col., 3701 N. Broad St., Philadelphia.
Lipsius, Edward I., Capt., 5918 Larchwood St., Philadelphia.
McCune, David P. J., Major, 1830 Converse St., McKeesport.
McGettigan, Daniel L., Capt., 656 Miller Ave., Pittsburgh.
McLaughlin, James T., Major, 409 Oakland Ave., Pittsburgh.
Manges, Lewis C. Jr., Lt. Col., 3321 W. Penn St., Philadelphia.
Mango, Albert E., Major, 436 E. 6th St., Erie.
Martin, Josef E., Major, 265 N. Maple St., Kingston.
Maser, Morris M., Capt., 1634 N. 15th St., Philadelphia.
Myers, Charles E., Major, 345 Rutter Ave., Kingston.
Newman, William H. Jr., Major, 120 Nelson St., Clark's Green.
Petraglia, Angelo A., Major, 104 N. Graham St., Pittsburgh.
Putnam, H. M., Major, Childrens Hosp., 18th & Bainbridge. Philadelphia.
Pyne, James A., Major, 424 Wyoming Ave., Wyoming.
Ramsey, James P., Major, 1528 Christian St., Philadelphia.
Rice, Dale A., Lt. Col., 537 Walnut St., Meadville.
Rushbridge, Harold W., Major, 430 Ella St., Wilkinsburg.
Rybachok, Taras H., 1st Lt., 756 N. 22d St., Philadelphia.
Selickman, Mitchell A., Capt., 1951 72d Ave., Philadelphia.
Smith, Joseph G., Capt., 23 N. 2d St., Sunbury.
Snyder, Charles P. Jr., Major, Manor Park Bldg., Manor.
Stegura, Barney A., 1st Lt., 630 S. Hanover St., Nanticoke.
Stein, Arthur J., Capt., 1431 W. Diamond St., Philadelphia.
Tate, Fred J., Capt., 751 N. 7th St., Allentown.
Thomas, Eugene L., Capt., 4856 N. B St., Philadelphia.
Ulrich, Samuel D., Lt. Col., 51 N. 39th St., Philadelphia.
Weyland, James G. M., Lt. Col., 1280 Park Place, Beaver.
Yingling, Paul L., Major, Main St., Shippenville.

Rhode Island

Arlen, Richard S., Capt., 359 Broad St., Providence.
Beaudoin, Louis I., Capt., 16 Armistice Blvd., Pawtucket.
Fracasse, John, Capt., 23 Joslin St., Providence.
Grover, Morris L., Major, 500 Elmgrove Ave., Providence.
Jones, Walter Smalley, Major, 165 Waterman St., Providence.
Lewis, Luther R., 1st Lt., 270 Benefit St., Providence.
Mills, Parker, Capt., 266 Smith St., Providence.
Nevitt, Francis, Capt., Providence.
Squilliante, Orlando J., Major Warren.

South Carolina

Asbill, David St. P., Capt., 425 N. Edisto Ave., Columbia.
Bolgla, Julius H., Capt., Spartanburg, GH, Spartanburg.
Hair, Joseph T., Capt., Aiken.
Hamilton, Alfred T., Major, 517 North St., Chapel Hill.
McConnell, Harvey E., Capt., 124 Church St., Chester.
Scott, James E. Jr., Capt., 11 Logan St., Charleston.
Scott, William S., Capt., 166 Alabama St., Spartanburg.
Seastrunk, Jesse G., Capt., 613 Henderson St., Columbia.
Smith, Bachman S. Jr., Capt., 65 Gibbes St., Charleston.
Whitworth, Horace M. Jr., Major, 21 Sevier, Greenville.

Tennessee

Blackwell, Samuel J., Major, 791 McConnell, Memphis.
Brasfield, John A., Capt., Dresden.
Brown, Robert L., Major, 500 Harlan Ave., Jellico.
Burch, John C., Col., Tyne Blvd., Nashville.
Bush, Douglas M., Major, 3625 Hanover St., Dallas.
Caudill, Estill L. Jr., Capt., Oaklawn, Elizabethton.
Christenberry, Henry E. Jr., Capt., 501 W. Church, Knoxville.
Eblen, James G., Capt., 3024 Kingston Pike, Knoxville.
Hamilton, James L., Lt. Col., 1810 Crestwood Dr., Chattanooga.
Hay, Floyd B., Capt., Byrdstown.
Hutton, Vernon Jr., Major, Nashville General Hosp., Nashville.
Johnson, David F., Major, Madison College, Madison.
Lillard, John H., Capt., Benton.
McClary, Spencer B. Jr., Capt., Etowah.
McCoin, Joseph, Capt., 112 Tennessee Ave., La Follette.
McCown, Oswald S. Jr., Capt., 2 Parke Ave., Germantown.
Malcolm, William B., Major, Dandridge.
Myhr, Lamb B., Capt., Bellevue.
Patterson, Robert C., Major, 1912 Linden St., Nashville.
Prevo, Samuel B., Major, 1710 S. Parkway East, Memphis.
Reeser, Archibald W., Capt., Church Hill.
Rhea, Hal S., Capt., 655 S. Belevedere, Memphis.
Ruffin, James S. Jr., Major, 820 Temple Ave., Knoxville.
Satterfield, William T., Lt. Col., 1320 Lamar Ave., Memphis.
Shapiro, John L., Capt., 2006 Acklen Ave., Nashville.
Shelton, George W., Col., Box 183, Manchester.
Snap, Landon B. II, Capt., 1714 Windsor Ave., Bristol.
Tharp, George W. Jr., Major, 616 Arrowhead Dr., Knoxville.
Welch, Julian K. Jr., Capt., 1016 Jackson Ave., Memphis.
West, Jasper D., Lt. Col., 786 N. Evergreen St., Memphis.
Witherington, James B., Major, Millington.
Zirkle, Charles R., Capt., Kingston.

Virginia

Booker, Daniel C., Major, St. Elizabeth's Hosp., Richmond.
Booker, James M., Capt., Med. Coll. of Virginia, Richmond.
Duncan, George A., Lt. Col., 300 Wainwright Bldg., Norfolk.
Horsley, Guy W., Lt. Col., 500 St. Christopher Rd., Richmond.
Low, James R., Capt., Welcome, King George County.
Malkin, Samuel H., Major, Oak St., Bedford.
Mitchell, Edward A., Capt., Box 282, Clinchco.
Phillips, Joseph T. Jr., Capt., 311 Wainright Bldg., Norfolk.
Potter, Richard C. Jr., Capt., Lee St., Marion.
Robinson, Dennis H., Capt., Bedford.
Scott, Robert J., Capt., 5 Parker St., Onancock.
Selden, Thomas W., 1st Lt., 800 Avenue A, Norfolk.
Spencer, Roger R., Capt., 600 Monroe St., Lynchburg.
Watkins, William R., Major, S. Boston.
Williams, John P., Col., 828 W. Franklin St., Richmond.

Washington

Baskin, Lester S., Capt., 905 N. Tacoma Ave, Tacoma.
Bell, Allan B., Capt., 510 Birth St., Shelton.
Brown, Ralph C., Capt., 2301 Columbia, Olympia.
Cooley, Percy P., Major, Monroe.
Dalinkus, Albert G., Capt., Sacred Heart Hosp., Spokane.
Frewing, Harry L., Major, 201 W. 37th St., Vancouver.
Goss, Harold L., Col., 4502 E. 33d St., Seattle.
Humiston, Homer W., Major, 3411 N. 24th St., Tacoma.
Jessup, Horace S., Capt., 18th & Laurel, Port Angeles.
Kimball, Charles D., Capt., 3804 E. Highland Dr., Seattle.
Low, Joseph H., Capt., 1025 Naches Ave., Yakima.
Miller, Richard R., Lt. Col., 5634 36th Ave. S.W., Seattle 6.
Qualheim, Clarence B., Capt., 3450 38th Ave. S.W., Seattle.
Tupper, James A., Capt., 2733 33d So., Seattle.
Vukov, Silvio J., Capt., 3850 17th Ave. S.W., Seattle.
Walker, John H., Capt., 513 N. G St., Tacoma.

Hawaii

Metz, Harland I., Capt., Wilcox Hosp., Lihue, Kauai.
Vasconcellos, Arthur L., Capt., Queen's Hosp., Honolulu, Oahu.

ORGANIZATION SECTION

Postwar Medical Service

MEETING OF SEPTEMBER 22

The meeting of the Committee on Postwar Medical Service was called to order by the Chairman, Dr. Ernest E. Irons, in the Board of Trustees Room of the American Medical Association Building at 10 a. m. Saturday, September 22. The following members, liaison members and guests were present:

Dr. Irvin Abell.	Col. B. R. Kirklin.
Dr. Louis H. Bauer.	Dr. Herman L. Kretschmer.
Lieut. Col. Robert D. Bickel.	Dr. Roger I. Lee.
Dr. Walter L. Bierring.	Major Gen. George F. Lull.
Dr. Francis G. Blake.	Col. Hugo Mella.
Dr. Frederick A. Coller.	Dr. J. J. Moore.
Mr. Graham L. Davis.	Dr. Walter W. Palmer.
Major Gen. Warren F. Draper.	Dr. Carl M. Peterson.
Capt. William E. Eaton.	Lieut. Col. William N. Piper.
Lieut. Col. Bryan C. T. Fenton.	Father Alphonse M. Schwitalla, S.J.
Dr. Morris Fishbein.	Dr. R. L. Sensenich.
Major Gen. Paul R. Hawley.	Dr. H. H. Shoulders.
Dr. E. L. Henderson.	Dr. LeRoy H. Sloan.
Mr. Thomas A. Hendricks.	Dr. Austin E. Smith.
Mr. J. W. Holloway Jr.	Mr. Barry C. Smith
Dr. Ernest E. Irons.	Miss Mary Switzer.
Dr. Victor Johnson.	Dr. Olin West.
Dr. Edwin P. Jordan.	Dr. Fred C. Zapffe.

The minutes of the meeting held on June 23, 1945, were approved.

The Chairman presented the regrets of Dr. Evarts A. Graham, Dr. Arthur W. Allen and Dr. James E. Paullin that they were unable to attend the meeting. Major Gen. Warren F. Draper, Deputy Surgeon General of the U. S. Public Health Service, who had been on overseas duty for the past year, resumed his place as a member of the Committee, and he, Dr. Roger I. Lee, President-Elect of the American Medical Association, who served as first chairman of the Committee, and Major Gen. Paul R. Hawley, recently appointed as head of the Medical Department of the Veterans' Administration, were welcomed.

A letter of resignation as liaison member of the Committee between the Office of the Surgeon General of the Army and the American Medical Association was presented from Lieut. Col. Harold C. Lueth. Colonel Lueth's resignation was accepted with regret and with appreciation of his services. It was announced that Lieutenant Colonel Piper would henceforth represent the Personnel Service of the Surgeon General's Office.

BUREAU OF INFORMATION

Lieut. Col. Robert D. Bickel, Liaison Officer, presented the following report:

The main energies of the Bureau of Information recently have been exerted toward getting in hand completed county summary sheets from all the states and establishing a reporting system by means of which the summary sheets can be kept up to date. It also has been necessary to arrange a uniform system of handling correspondence, which is becoming increasingly heavy. Problems having to do with medical education and postgraduate training are being referred to Dr. F. H. Arestad of the Council on Medical Education and Hospitals and those dealing with licensure and other legal matters to Mr. J. W. Holloway Jr., Director of the Bureau of Legal Medicine and Legislation. Correspondence regarding locations or the establishment of a practice are answered by the Bureau of Information from material on file in the Bureau.

As of Sept. 1, 1945 the returns of county summary sheets were complete from twenty-four states, returns from twenty-one states were partially complete and no returns whatever had been received from four states. A total of 2,357 county summary sheets have been received, leaving 716 still outstanding. Every effort is made to insure the accuracy of all entries on the summary sheets, and when inquiries are received from medical officers duplicate sheets for the areas concerned are filled out and forwarded. It has been the consistent policy of the Bureau of Information in corresponding with officers of state medical societies to stress the fact that the Bureau is not a placement agency and has no desire to send physicians into any area or community where places are being held open for men still in service.

Information concerning areas in need of physicians and specialists is on file in the Bureau as well as are the names of specialists seeking locations. There is also a file of industrial positions available and a file of pertinent current editorials and articles. In order that the data on file with respect to the distribution and need of physicans may be kept up to date an effort has been made to secure from each state medical society monthly listings of areas of need, and, in addition, a questionnaire has been mailed to each civilian physician in the country the return of which it is hoped will make possible the correction of existing data and will insure more accurate information.

An analysis of the correspondence received in the Bureau shows that, up to September 1, 213 physicians have written for information concerning locations in which to establish a practice; 85 communities or industries have requested help in finding a physician to relieve critical need; 110 communications have been received covering matters related to medical education, 81 pertaining to legal matters, and 65 completed county summary sheets have been given to office visitors.

The Information Bulletin for Medical Officers, which was presented to the Committee in galley form at the June meeting, has been distributed in the following manner: 50,000 copies were sent to the *Bulletin of the U. S. Army Medical Department*, 13,300 to the Bureau of Medicine and Surgery of the Navy and 1,800 to the Surgeon General of the U. S. Public Health Service. Approximately 3,000 copies have been sent to individuals, and as soon as shipping instructions are received 4,000 copies are to be forwarded to the Army Medical Library. The total number of copies printed was 76,100.

In reply to questions by Miss Switzer as to the number of medical officers who inquire about going into needy communities, Colonel Bickel stated that most of the inquiries were received from men who want to change locations and in doing so want to go where there are good hospital and laboratory facilities; they are not desirous of going into small rural communities where much travel would be necessary and good hospital facilities are lacking. Miss Switzer stated that the Procurement and Assignment Service is much concerned with the pressure from needy communities themselves, from Congress and others with respect to the maldistribution of physicians, which has almost reached crisis proportions; that an attempt should be made to work out a solution of the situation with the help of the state medical societies and state procurement and assignment committees, and that hospitals having available residencies should try to encourage the men coming back to practice—particularly the younger men—otherwise the maldistribution will be worse than it was during the war not only factually but from the point of view of public relations. Miss Switzer further stated that the South and some parts of the Middle West were most vitally concerned but that the communities most seriously in need of medical service were in Pennsylvania and perhaps in Indiana, and that a concerted effort to attract physicians to practice was being made by some of the Southern states through appropriation of money by state legislatures. Father Schwitalla asked what the Bureau of Information might be able to do in this matter, and Colonel Bickel replied that the plan of the Bureau has been to inform inquiring veterans as to where there is a need for a physician and to refer them to the state medical society concerned for further help, and that his contact had been mostly with men who do not expect to return to their former locations or had not been in practice before entering the armed forces and are anxious primarily to obtain certification by a specialty board before making definite plans for location and are determined to get such certification before doing anything else. Practically all of them want to obtain residencies at the more well known medical institutions; they don't want to go to the smaller hospitals, although a concentrated effort has been made through the Bureau of Information to tell such men where there is need for physicians to practice. The fact that the Bureau does not operate an actual placement service but works through local medical societies makes it difficult to do anything more than that.

Miss Switzer remarked that in many communities where there is desperate need for additional physicians there seems to be great resistance on the part of the state and county societies to the admission of new men, this resistance seeming to stem from the idea that the places of men now in service should be kept open against their return.

Dr. West discussed the problem and stated that another matter having direct bearing on it was the almost insurmount-

able difficulty of securing office space in many of the larger cities and towns, and that the Editor of THE JOURNAL has it in mind to make an appeal to the profession generally through the columns of THE JOURNAL to share their office facilities with the returning officers until more office space is available.

The Chairman emphasized the point that the Bureau of Information is not meant to be and cannot be a placement bureau and that the states and counties have and should have the opportunity and the responsibility in the matter. Dr. Fishbein also contributed to the discussion, saying that the majority of the officers who would be released between now and June would be the older men, who would undoubtedly return to their former locations, and that it is the younger men who have never practiced who will want satisfactory residencies and continued education. Colonel Piper said that the separation plans now call for the automatic release of the older men and that the younger men would very likely be held in service a little longer. Colonel Bickel's opinion was that, since so many of the physicians in service want some training before going back to practice and so many are willing to practice if they can get their training, the most important thing to do is to concentrate on a residency and training program. A medical officer who has been doing only administrative work for a number of years is hesitant to meet competition without further training.

General Draper mentioned newspaper articles quoting Surg. Gen. Thomas Parran and Col. W. Paul Holbrook which would seem to have an important bearing on this problem if the suggestion for utilizing civilian hospitals and physicians in the care of veterans and the idea of establishing large, central hospitals with smaller hospitals and contingent facilities radiating therefrom should be adopted. Mr. Barry C. Smith, director of the Commonwealth Fund, told the Committee that the Commonwealth Fund had maintained for a long time a fellowship program whereby medical students were educated under an agreement that on completion of internships they would go to practice in rural communities, but that many of the men tended to avoid the very districts where they were most needed, a few failed to keep the agreement entirely and many left rural practice after the initial three year period. He thought this of interest in connection with a proposal that the Army be asked to release physicians on condition that they go to practice in needy communities.

The report on the Bureau of Information was accepted and publication authorized.

LOCAL PLANS FOR ASSISTANCE TO RETURNING MEDICAL OFFICERS

The Chairman announced that the Board of Trustees of the American Medical Association had authorized the acceptance for publication in THE JOURNAL free of charge of advertisements by medical officers seeking locations. (See THE JOURNAL, October 6, p. 450.)

Dr. Abell stated that in Louisville, Ky., a survey of available office space had been made, that some physicians had offered to share their own office space, that every full time and part time state and county health department and hospital staff opening was being noted, and that a fund to provide loans to returning medical officers if needed was being raised. Dr. West stated that the Medical Society of the State of Pennsylvania and several of the larger county medical societies are raising loan funds for veterans. Miss Switzer stated that the Kansas Medical Society had established such a fund. (Other medical associations that have made or are making definite plans along these lines are the Connecticut State Medical Society, which is setting up a Service Bureau; the Medical Society of Delaware; the Indiana State Medical Association; the Louisiana State Medical Society; the Massachusetts Medical Society, which has under consideration the establishment of a postwar loan fund; the Medical Society of the County of New York, which has formed a medical veterans' aid fund, and the Columbus, Ohio, Academy of Medicine with a veterans' collateral pool fund.)

EDUCATIONAL INTERNSHIP AND RESIDENCY OPPORTUNITIES

Dr. Victor Johnson, Secretary of the Council on Medical Education and Hospitals, presented the following statement:

The Sept. 29, 1945 issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION will contain a revised list of residency places in approved hospitals. In this list there are approximately 2,000 approved residency positions in excess of the numbers available in approved hospitals before the war. It is anticipated that there will be a great demand for this information, so that a large reprinting will be made. As hospitals continue to plan expansion in their residency offerings, the list of approved residencies will be revised. A large number of requests for information of this kind has been received in the headquarters of the Council on Medical Education and Hospitals. To facilitate supplying desired information, the Council is establishing with hospitals a reporting system by means of which data on existing vacancies will be kept up to date. The Council's publication of "Postgraduate Continuation Courses for Veteran and Civilian Physicians" has been widely sought by returning medical officers. Over 1,000 copies of this reprint have been distributed already, and another large reprinting has been made.

Colonel Fenton gave an outline of the training program in force in the regular Army. He said that the majority of the officers of the Army Medical Corps during the wartime period had been placed in administrative positions and that the Army now was attempting to train them for manning the Army hospitals so that the A. U. S. officers might be released to civilian life. He further stated that the Army had a more far reaching program which would provide further training for its regular Medical Corps officers looking toward certification by various specialty boards and that in this program the cooperation and help of the Committee on Postwar Medical Service and its cooperating members would be greatly appreciated. He stated further that a somewhat larger regular Medical Corps is expected to be maintained in the future, that the plan at the present time is for the integration of the A. U. S. officers all along the way, that if possible men over 40 years of age would not be included, that it is hoped the majority will be 35 or under, that present A. U. S. officers are constantly inquiring about getting into the regular Army Medical Corps and that the War Department is now working on a policy.

Dr. Johnson commented that all who have been concerned with providing educational opportunities for returning medical officers are greatly appreciative of the interest the Army and Navy has taken in the problem and that the task they are now attempting to carry through will assist civilian hospitals materially in providing what the men want.

Dr. Zapffe brought up the question of the difficulty encountered by medical officers who are graduates of unrecognized medical schools in getting into registered hospitals. Colonel Piper believed that there are about 400 officers who are graduates of unrecognized schools, and Dr. Johnson stated that nothing much could be done, since many of the states require that a resident physician in a hospital must be licensed to practice in the state. There was continued discussion, after which Dr. Johnson's report was approved and publication authorized.

ENROLMENT OF MEDICAL STUDENTS

The following report was presented by Dr. Victor Johnson:

The cessation of hostilities with Japan has not altered the position of the Selective Service System, the Army or the Navy regarding the deferment of qualified premedical students and the return of qualified men now on active duty in the Army or the Navy to continue premedical or medical studies. However, the Senate recently referred the Downey resolution (No. 134) to the Senate Military Affairs Committee. Among other things this resolution calls for an investigation into the supply of medical students in the immediate future. Col. W. Paul Holbrook of the Air Surgeon's Office has been secured by the Senate committee to conduct the investigation. Conferences and correspondence between Colonel Holbrook and the Secretary of the Council on Medical Education and Hospitals have taken place, and it is hoped that appropriate action along the two lines mentioned may be forthcoming. Such action is still necessary, even though hostilities have ceased, because inductions are continuing and the younger men will probably be the last to be discharged from active duty, so that the acuteness of the shortage of qualified medical students continues. At the request of the Inter-Agency Committee on Deferments, the Procurement and Assignment Service is also studying the question of the supply of premedical students. Should it be demonstrated that inadequate numbers of veterans will be available to fill the 1946 classes to peacetime capacity, the Inter-Agency Committee has indicated that it may reconsider its deferment policies.

In the ensuing discussion Miss Switzer stated that the Procurement and Assignment Service had made a great effort to secure the concurrence of Selective Service in the deferment of premedical students, that General Hershey feels that such students should be procured from the veteran group, that there is an interdepartmental committee which has the authority to say which men shall be deferred, that it finally was agreed that an attempt would be made through publicity and other means to acquaint Army and Navy men with the need for premedical students and to put the men in touch with the schools,

and that if there was no material improvement in the situation through these efforts the matter would come up again in October. Father Schwitalla mentioned that he had accepted appointment as a "premedical adviser" for the separation center at Jefferson Barracks, Missouri, and that the number of possible candidates for premedical study is extremely small.

Dr. Johnson's report was accepted and publication authorized.

SURPLUS MEDICAL AND HOSPITAL SUPPLIES

Father Schwitalla, Chairman of the Subcommittee on Surplus Medical and Hospital Supplies, requested Miss Switzer to make the report for the Subcommittee, which she did as follows:

Mr. Symington has been appointed Surplus Property Administrator, and a beginning seems to have been made. The Advisory Committee to the Administrator was appointed last week in the hope that it may be of assistance in setting up standards of need necessary for our guidance. The Surplus Property Board has transferred certain funds for planning an orderly procedure. Machinery will be needed to determine eligible claimants, price differentiation and areas of need. Both the Public Health Service and the Office of Education are assembling staffs which will be well under way within the next thirty days. The Administrator's office expects to coordinate the two and keep standards somewhat similar.

Four members of the Subcommittee on Surplus Medical and Hospital Supplies are members of the Advisory Committee, namely Dr. Irons, Dr. Fishbein, Father Schwitalla and Miss Switzer.

The organizations asked to name representatives on the Advisory Committee are the American Medical Association, the American Dental Association, the American Hospital Association, the American Public Health Association, the American Pharmaceutical Association and engineering groups. It probably will be felt that some representatives of industry will be needed. This is strictly a professional committee to rely on for suggestions as to standards, degrees of need, and so on.

The Chairman presented a letter addressed to the Secretary of the American Medical Association by Dr. A. S. Fernando of Manila, who is attempting to revive the Philippine Medical Association, of which he was secretary-treasurer for many years, and to rehabilitate the University of the Philippines, whose buildings were practically razed. (Dr. Fernando wrote that the library of the Philippine Medical Association was completely burned and that the Bureau of Science housing the Scientific Library, which was reputed to have the best and largest collection of medical publications in the Far East, is now only rubble and ashes.) Dr. Irons stated that the Board of Trustees of the American Medical Association had referred Dr. Fernando's communication to the Committee on Postwar Medical Service. What the Committee might do in the way of assistance to the medical profession in the Philippines was discussed at length, and the following statement was adopted for transmission through Miss Switzer to Hon. Paul V. McNutt, recently appointed High Commissioner to the Philippines:

The Committee on Postwar Medical Service wishes to extend to Hon. Paul V. McNutt in his capacity as High Commissioner to the Philippines its support for any program which he may develop for the use of surplus supplies or materials to help in the Philippine situation.

Miss Switzer was requested to report back to the Committee at its next meeting.

VETERANS ADMINISTRATION

The Chairman stated that the setup of the Veterans Administration had been changed since the subcommittee of the Committee on Postwar Medical Service had been at work, that General Hawley, present at this meeting, would have charge of the medical functions in the Administration, and that the Committee will be delighted to be of service to the Veterans Administration as it is now and as it will be constituted.

Father Schwitalla, chairman of the subcommittee dealing with the Veterans Administration, stated that General Hawley would present to the committee the modifications that have been recommended by the Veterans Administration and the outline, content, and so on of a new bill which might be called the Administration's own bill and which will undoubtedly mean the withdrawal of the old bills that provided for the organization of a medical corps in the Veterans Administration.

General Hawley then presented a concise outline of a bill being drawn for presentation to Congress providing for the reorganization of the Veterans Administration and made particular reference to certain sections having to do with a Department of Medicine and Surgery, as follows:

The bill provides for a Department of Medicine and Surgery to consist of an Office of the Surgeon General, a Medical Corps, Dental Corps and Nurse Corps and an Auxiliary Corps to provide for allied sciences. It provides for a Surgeon General to be appointed by the President for a four year term, a Deputy Surgeon General and eight Assistant Surgeons General, one of whom shall be from the Dental Corps and will be chief of that corps. The Surgeon General shall be a qualified doctor of medicine. The Auxiliary Corps shall consist of pharmacists, physical therapists, dietitians, occupational therapists and other scientific personnel including bacteriologists, pathologists, chemists, biostatisticians and medical and dental technologists. The Auxiliary Corps shall further include non-commissioned personnel to be appointed without regard to civil service laws. The several corps shall each include a reserve corps.

All persons appointed in the Department of Medicine and Surgery must be citizens of the United States of America, and those appointed in the Medical Corps must be persons holding the degree of doctor of medicine from a college or university approved by the Administrator of Veterans' Affairs who have completed internships in an institution satisfactory to the Administrator and who have been licensed to practice medicine in one of the states or territories or in the District of Columbia.

The bill provides for promotion by length of service and examination. Grades below those of Surgeon General and Deputy and Assistant Surgeons General are comparable to Army grades from colonel down. Disciplinary boards to determine charges of ineptitude or misconduct are provided for. Within the restrictions imposed in the bill, the Surgeon General may rate any officer of the Department of Medicine and Surgery as a medical, surgical or auxiliary specialist. He may rate as specialists only those who are certified by an American specialty board. Any officer rated as a medical, surgical or auxiliary specialist shall receive 35 per cent higher pay. This is an incentive to do better work. Retirement pay is comparable with Army regulations.

The bill provides authority for the President to declare the Department of Medicine and Surgery a part of the military forces in time of war. It provides for medical and dental service for members themselves and, when available, for their dependents the same as in the Army and Navy, and it also provides for rotation of personnel into the Army and Navy for exchange of ideas and graduate instruction. The Administrator of Veterans' Affairs is authorized to place personnel on duty in schools of the Army, Navy and Public Health Service and in civilian institutions to increase knowledge. A broad section authorizes the Administrator to employ other personnel in addition to professional personnel, sets up a medical advisory council and gives it status under the law to advise the Administrator through the Surgeon General on medical policies.

After extended general discussion, in which it was brought out by Dr. Shoulders that the Committee on Postwar Medical Service had at its meeting held on March 17, 1945 endorsed the intent and provisions of the Rogers bill (H. R. 1661), the Committee voted to empower the subcommittee to withdraw the Committee's endorsement of the Rogers bill and to act on endorsement or nonendorsement of the new Veterans Administration bill described by General Hawley when it is presented to Congress. The consensus was that the bill as described by General Hawley would merit the complete support of the Committee on Postwar Medical Service and the medical profession generally.

Father Schwitalla offered a brief report for the Subcommittee to Confer and Cooperate with the Veterans Administration on Educational Opportunities for Veterans, stating that the Subcommittee hoped to see, before the next meeting of the whole Committee, Mr. H. V. Stirling, director of the Vocational Rehabilitation and Education Service, in order to obtain more information and statistics with respect to veterans who may be interested in acquiring a medical education and to determine, if possible, what is happening or will happen in the cases of veterans who serve as interns and residents in hospitals under the educational provisions of the G. I. bill with particular reference to those residents in hospitals that do not provide strong educational opportunities.

The Chairman stated that the Subcommittee to Confer and Cooperate with the Veterans Administration, consisting of Father Schwitalla and Dr. Coller, would be continued and a further report expected at the next meeting. He also said that the Subcommittee on Establishment of a Medical Corps in the Veterans Administration will be continued with the addition of Dr. Coller as a member.

DEMOBILIZATION OF MEDICAL OFFICERS

Dr. Coller, Chairman of the Subcommittee on Formulation of Lists of Medical Officers for Demobilization, requested General Lull to give the Committee such information as he could, and General Lull responded with the following statement: The machinery for discharge of medical officers is now working and a great many already have been discharged and returned to civil life; the bulk of the teachers requested by medical schools, if they were not overseas, have been discharged; those over 40 years of age or who entered service before Pearl Harbor will get out soon and the medical schools will have a very large

proportion of their teachers back before the first of the year—this is in addition to the normal demobilization; there will be excellent results in the next couple of months.

Dr. Zapffe substantiated the statement of General Lull, further stating that medical schools do not seem to understand that the Army cannot release certain men it considers essential to its own needs. He also said that the Navy is working on lists of needed teachers now serving as Navy medical officers, and he was sure the matter is going forward as rapidly as possible.

Captain Eaton informed the Committee concerning a Navy Department directive covering discharge procedure for Navy officers, which became effective on September 15. He stated that most of the men requested by the medical schools are being released now as far as possible, particularly the ones in this country, and also those known as "hardship cases."

The Subcommittee was continued.

BUSH REPORT ON PROPOSED NATIONAL RESEARCH FOUNDATION

Dr. Blake, Chairman of the Subcommittee to Study the Bush Report on a Proposed National Research Foundation, presented the Subcommittee's report. After discussion and amendment, the report was adopted and immediate publication authorized. (The report of the Subcommittee appeared in THE JOURNAL, October 6, p. 466.)

WARTIME GRADUATE MEDICAL MEETINGS

The Chairman presented a letter from Dr. F. F. Borzell, Chairman of the Central Committee of the Wartime Graduate Medical Meetings, in which it was stated that that committee had taken steps to terminate its activities on or before Dec. 31, 1945, and the Chairman announced that the three organizations sponsoring the meetings—the American Medical Association, the American College of Surgeons and the American College of Physicians—had agreed to this procedure. On motion duly seconded and carried, the Committee on Postwar Medical Service concurred in this action.

Captain Eaton presented a comprehensive memorandum of the Bureau of Medicine and Surgery of the Navy, in which several new phases of the training of naval medical officers are outlined.

LICENSURE

Dr. Walter L. Bierring, Secretary of the Federation of State Medical Boards, presented the following report, which was approved and publication authorized:

A questionnaire comprising five items was sent to the state board of medical examiners in each state, the District of Columbia and the territories of Alaska, Hawaii and Puerto Rico. The questions and responses thereto are submitted herewith. (There was no response from Hawaii, and Massachusetts deferred its reply.)

1. What will be the attitude of your board toward medical officers desiring to relocate after separation from military service, who are graduates of an approved medical school?

Practically all of the state boards express a willingness to cooperate with the returning medical officer in facilitating relocation but do not indicate any intent to accord credit for military service or to deviate from existing regulations of licensure by examination, reciprocity or interstate endorsement or by certification of the National Board of Medical Examiners. Three exceptions are noted.

New York: The State Department of Education has set up a special veterans' committee to pass on all applications of medical officers who are graduates of approved medical schools with a view to endorsing their previous licenses as far as possible.

Pennsylvania: The State Board of Medical Education and Licensure was instrumental during the recent general assembly in having an act passed whereby discretionary power is given the board to grant licenses to returning officers of the Medical Corps without examination. The board will adhere to the basic requirements under Pennsylvania law of a recognized medical school education and rotating internship. The act will remain in effect three years after the termination of hostilities. For those who are physically or mentally incapacitated during that period, the act will continue for five years after the cessation of hostilities.

North Dakota: Graduates of recognized schools who take a year's training in an acceptable hospital or college following dismissal from military service and present a satisfactory certificate from the Dean of said school will be granted a license without further examination.

2. What will be the attitude of your board toward those graduates of unapproved medical schools who have demonstrated their competence in connection with their military service? (It is estimated that there are about 150 such officers.)

Aside from the several exceptions noted later, the state boards will not accept graduates of unapproved medical schools for licensure regardless of military service.

Arizona: Not recognized heretofore but will receive special consideration at next meeting of the board on October 6.

Georgia: The board requires graduates of unapproved medical schools to attend an approved school for one year and certification of the same by the dean.

Illinois: Admits to licensure graduates of an unapproved medical school located in that state but not otherwise.

Massachusetts: Same as Illinois.

New York: The Veterans' Committee will pass on all such applications and, if they can show one or two years of military service during which time they have been actively engaged in medical or surgical work, the board will endeavor to admit them to the licensing examination. If they have not had active medical or surgical work while in the armed forces, one year of attendance at an approved medical school will be accepted.

3. Early in the war a number of medical officers entered military service without obtaining licensure in any state. What will be the attitude of your board in such cases?

The Vermont State Board of Medical Examiners responds to this question by stating that such applicants will be licensed without examination if in active service in the armed forces two or more years, provided they meet the other requirements for licensure. All of the other state boards will require the regular licensure examination.

The certificate of the National Board of Medical Examiners is accepted in all but four states (Florida, Texas, Montana and Wisconsin).

4. Does your state provide for temporary licenses? If so, what is the procedure?

The following states provide for some form of temporary licensure:

Maine: Issues temporary licenses for relocation during the war only and six months thereafter.

Nevada: "Temporary licenses will probably be discontinued at the next meeting of the board in November 1945."

New Hampshire: Issues limited licenses in special forms of practice as in radiology.

New Jersey: Issues temporary licenses during the war or other emergency for not less than two weeks or not more than four months.

North Dakota: Temporary licenses issued only during the war emergency.

Pennsylvania: Statutory provision for temporary licenses for the duration of the war and six months thereafter.

Puerto Rico: Temporary licenses for the period of the war and six months thereafter.

Washington: Temporary licenses issued during the war emergency at the discretion of the Director of Licenses.

Kansas, Louisiana, Mississippi, South Dakota and Virginia: Temporary licenses are issued until the next meeting of the board.

5. Does your state require a license for hospital residents? If so, what is the procedure?

California, District of Columbia, Illinois, Indiana, Kansas, Louisiana, Michigan, Minnesota, Nevada, Ohio, Oklahoma, South Carolina and Wisconsin require a license from a hospital resident.

Nebraska and Texas require a license if the resident engages in independent practice.

Rhode Island requires a license after one year of residency.

New Jersey requires a license after two years of residency.

Puerto Rico requires a license for resident, but said license is granted without examination.

SUMMARY

1. Medical officers who are graduates of an approved medical school desiring to relocate after separation from military service will be required to satisfy the peacetime licensure regulations in the states where they desire to locate, with the exception of the states of New York, North Dakota and Pennsylvania, where special consideration is given to this problem.

2. Medical officers who are graduates of unapproved medical schools will experience difficulty in obtaining licensure in any state except Illinois and Massachusetts. Arizona, Georgia and New York appear willing to give special consideration to such applications. In this connection two additional requirements were suggested: (*a*) complete statement of medical military service of each applicant and certification of the same or (*b*) one year of attendance in an approved medical school after separation from military service and certification of the same by the dean. These were submitted to the state boards without bringing forth any special reaction or comment. It would appear that the next step in this problem should be taken by the two educational agencies, the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association.

3. Medical officers who entered military service without obtaining a license to practice in any state will evidently be required to take the regular licensure examination in the state concerned. Diplomates of the National Board of Medical Examiners will be exempt from these examinations wherever the certificate of the board is accepted. The Vermont board expresses also a liberal attitude toward such applicants.

4. Early in the war period there was a general expectation that provisions for temporary licensure would be established in most of the states, but the opposition encountered by state licensing boards restricted the same to a limited number of states and then only for the duration of the war and six months thereafter.

5. In the states where a license is required for hospital residents, a further inquiry will be necessary to ascertain the attitude of the respective state boards as to whether this requirement applies to medical officers carrying on their advanced training in hospitals approved for residencies, which might act as a barrier to such training. In the seventeen states and the District of Columbia having boards of examiners in the basic sciences, certification by such boards is required before admission to medical licensure.

NEW BUSINESS

The Chairman and the Secretary were requested to prepare a report of the work of the Committee on Postwar Medical Service for presentation to the House of Delegates of the American Medical Association at its meeting to be held in Chicago December 3 to 6.

Colonel Bickel informed the Committee that he had received orders to close the Liaison Office of the Surgeon General of the Army that has been maintained at American Medical Association headquarters since October 1940. He expressed the appreciation of the Surgeon General for the splendid cooperation received, as well as his own sincere gratitude to all concerned who have been of assistance during the time he has been in charge as Liaison Officer. The Chairman thanked Colonel Bickel for his efforts and particularly for his excellent work in the conduct of the Bureau of Information.

Father Schwitalla presented a letter he had received from Dr. C. Willard Camalier, chairman of the War Service and Postwar Planning Committee of the American Dental Association, concerning surplus dental supplies that might be obtainable for the use of young dentists going into practice in needy areas. Action on Dr. Camalier's communication was postponed until the next meeting.

TIME AND PLACE OF NEXT MEETING

It was decided that the next meeting of the Committee would be held at American Medical Association headquarters, Saturday, Dec. 1, 1945.

The meeting adjourned at 1:15 p. m.

Washington Letter

(From a Special Correspondent)

Nov. 12, 1945.

Kelley Proposal on Artificial Limb Research Is Opposed

Champions of the Veterans Administration are none too pleased about the proposal of Representative Augustine B. Kelley, Democrat of Pennsylvania and chairman of the subcommittee on aid to the physically handicapped, that future government research on artificial limbs be centered in the U. S. Public Health Service instead of in the Veterans Administration. Major Gen. Paul R. Hawley, assistant administrator of veterans affairs in charge of medicine and surgery, has announced that the Veterans Administration would take over on January 1 all research now being done by the Army, Navy and National Research Council's prosthetic committee. Funds provided the Committee on Prosthetic Devices will run out at the end of the year, and the Veterans Administration plans to ask for an appropriation from Congress to continue research throughout the country and to carry on the $500,000 in contracts with industrial laboratories now held by the committee.

Representative John E. Rankin, Democrat of Mississippi, chairman of the Veterans Committee, said that Mr. Kelley was mistaken in his opinion that the Board of Prosthetic and Sensory Devices, now a function of the Office of Scientific Research and Development, should be transferred to the Public Health Service instead of to the Veterans Agency. The Kelley committee has announced an eleven point program to guarantee proper provision of prosthetic devices for veterans, as follows: 1. That all skilled artificial limb workers be returned from military duty. 2. That the Veterans Administration provide limbs freely and from whatever source the veteran selects. 3. That procedure for securing limbs be simplified. 4. That the Federal Trade Commission police the artificial limb industry scrupulously. 5. That veterans be reimbursed for time lost because of unsatisfactory appliances. 6. That red tape of having men in charge of the Veterans Administration cared for by the War and Navy departments be overcome by contract arrangement. 7. That the federal government's obligation to undertake research until substantial improvement in prosthetic devices be made clear. 8. That any improvements created at federal expense should be free of royalty. 9. That the Department of Justice should continue investigating antitrust violations in limb making. 10. That the federal government research be placed in the U. S. Public Health Service. 11. That the Board for Prosthetic and Sensory Devices and its committee work should be transferred at once to the Public Health Service.

No comment was immediately forthcoming on the statement in Chicago by Dr. Paul E. Klopsteg, chairman of the Committee on Prosthetic Devices of the National Research Council, that artificial limbs now being supplied veterans have seven major faults.

Bernard Baruch Endorses National Science Foundation

Elder statesman Bernard M. Baruch, adviser to presidents since Woodrow Wilson, fully endorsed legislation for a national science foundation in his testimony before the Senate Military-Commerce subcommittees considering bills to create a federally financed program to aid research. He declared it to be a fact that Germans and Japanese will strive through science to create the means of waging another world war, and he suggested these courses for a peacetime United States scientific program: 1. Greatly increased scientific brain power, using scholarships and other aids to develop new scientific talent in American youth. 2. Continued military research in developing new weapons for national defense. 3. Intensified scientific war against disease. 4. Offsetting depletion of natural resources. 5. Stimulation of basic scientific research. 6. Dissemination of scientific information as widely as possible. 7. Creation of a new, permanent government agency to coordinate activities into an integrated, national scientific policy.

President Truman insists that any scientific discoveries coming from federally financed research be public property. He outlined this position in a letter written by Reconversion Director Snyder to Senators Kilgore, Democrat of West Virginia, and Magnuson, Democrat of Washington, who are holding the joint hearings on a national scientific foundation.

Approval of Mental Health Institute by Subcommittee

Unanimous approval was given by a House subcommittee headed by Representative J. Percy Priest, Democrat of Tennessee, to the bill to establish a $4,500,000 mental health institute in the District of Columbia. In testimony before the joint House Interstate and Foreign Commerce subcommittee, Mr. Priest had reported that the name of the proposed institute was changed from the National Neuropsychiatric Institute to the National Institute of Mental Health. On the suggestion of the Budget Bureau several changes have been made in the bill. An amendment would put the fund for research into a common U. S. Public Health Service treasury, earmarking the money for institute use. This would prevent wide open federal aid to private institutions, because under the Public Health Service the fund cannot be used to subsidize private hospitals.

Coming Medical Meetings

American Medical Association House of Delegates, Chicago, Dec. 3-6. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Allergy, Chicago, Dec. 10-11. Dr. Karl D. Figley, 316 Michigan St., Toledo 2, Ohio, Secretary.

American Association on Mental Deficiency, Cleveland, Nov. 28-Dec. 1. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American Society of Anesthetists, New York, Dec. 12-13. Dr. McKinnie L. Phelps, 745 Fifth Ave., New York 22, Secretary.

International College of Surgeons, U. S. Chapter, Washington, D. C., Dec. 7-8. Dr. Louis J. Gariepy, 16401 Grand River Avenue, Detroit, Secretary.

North Pacific Pediatric Society, Portland, Ore., Dec. 1. Dr. Aldis B. Johnson, Cobb Bldg., Seattle 1, Washington, Secretary.

Oklahoma City Clinical Society, Oklahoma City, Nov. 26-29. Dr. Elmer R. Musick, 512 Medical Arts Bldg., Oklahoma City, Secretary.

Puerto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Rafael A. Vilar, P. O. Box 3866, Santurce, Secretary.

Southern Surgical Association, Hot Springs, Va., Dec. 4-6. Dr. Alfred Blalock, Johns Hopkins Hospital, Baltimore 5, Secretary.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Amendment of G. I. Bill of Rights

The Senate has passed H. R. 3749, with amendments, a bill to amend the G. I. Bill of Rights. As passed by the Senate, this bill, among other things, (1) eliminates the requirement in the existing law that veterans must show that education was interrupted by service in order to qualify for the educational benefits of the law, extends the time from two to four years within which a course must be initiated and extends the time within which education or training may be afforded from seven to nine years; (2) adds a provision for short, intensive courses under contract with approved institutions, with authority to pay more than the pro rata customary charges; (3) increases the subsistence allowances under the title relating to education from $50 to $65 a month in the case of veterans without dependents and from $75 to $90 a month in the case of veterans with dependents; (4) provides that any person while on terminal leave, or while hospitalized pending final discharge, may be afforded the benefits of the law relating to education and loans, and (5) extends the time within which veterans may apply for the guaranty of a loan to ten years after the termination of the war.

Social Security Act Amendments

A bill, H. R. 4551, introduced by Representative Jackson, Washington, proposes to amend the Social Security Act to provide for a National Social Insurance System under which would be made available to covered persons retirement, survivors and extended disability insurance benefits. Among other things, the Social Security Board, after consultation with the Surgeon General of the United States Public Health Service and the Office of Vocational Rehabilitation, would be authorized to make provision for furnishing medical, surgical, institutional, rehabilitation or other services to disabled individuals entitled to receive the extended disability benefits if such services may aid in enabling such individuals to return to gainful work.

National Mental Health Act

Representative Priest, Tennessee, has introduced H. R. 4512, to amend the Public Health Service Act to provide for research relating to psychiatric disorders and to aid in the development of more effective methods of prevention, diagnosis and treatment of such disorders.

Miscellaneous

Two new bills propose methods of prevention of stream pollution. S. 1462, introduced by Senator Barkley, Kentucky, provides for water pollution control activities in the United States Public Health Service and for federal aid in the form of grants-in-aid, loans or both to any state, municipality or other public body for the construction of necessary treatment works to prevent the discharge of untreated or inadequately treated sewage "into the surface or underground waters in or adjacent to any state." The other bill, S. 1536, introduced by Senator Kilgore, West Virginia, proposes to encourage the prevention of stream pollution by allowing amounts paid for plants for the treatment of industrial waste as a deduction in computing net income.

Two other bills have been introduced relating to the discharge of members of the armed forces who desire to resume their education or training. One bill, H. R. 4376, introduced by Representative Schwabe, Oklahoma, provides that there shall be released from active duty for the period of one year any member of the military or naval forces who applies for such release and submits with his application an affidavit of his intention to resume his education or training by enrolling in an educational or training institution. If at the end of that year the member submits satisfactory evidence that he has made passing grades in the institution which he has attended, he will be granted a certificate of honorable discharge. The other bill, H. R. 4511, introduced by Representative Gillie, Indiana, likewise provides for the discharge from the armed forces of any person who desires to resume his education or training, if his education or training was impeded, delayed, interrupted or interfered with by reason of his entrance into the service. If any such person was not over 25 years of age at the time he entered the service he will be deemed to have had his education or training impeded, delayed, interrupted or interfered with. This bill, too, provides for the discharge of any person who desires to return to his business or profession which he was forced to discontinue or place in other hands at the time of his induction or enlistment into the military service.

Official Notes

NBC NETWORK BROADCASTS TO BE RESUMED

Beginning Saturday December 15 at 4 p. m. Eastern Standard Time (3 p. m. Central Standard Time, 2 p. m. Mountain Standard Time, 1 p. m. Pacific Standard Time) the American Medical Association will resume its nationwide dramatized radio health programs on the network of the National Broadcasting Company and associated stations. The broadcasts will run for twenty-six weeks.

The title for the network broadcasts will be "Doctors at Home," which will represent the sixth consecutive year of broadcasting under the general title "Doctors at Work," which was modified during the war years to "Doctors at War" and "Doctors Look Ahead." "Doctors at Home" will deal, as its title indicates, with the return of doctors from the war and their reabsorption and readjustment into life at home. Going back to the "Doctors at Work" formula, the programs will be in story form, continuous from week to week. The fictitious doctor who was the hero of "Doctors at Work" (Dr. Tom Riggs, who was several times mistaken for a real doctor instead of a radio character) will return from his military service and will resume his practice in a typical American town. Listeners will meet again Dr. Riggs's wife Alice and child, the rest of the Riggs family and their friends, and the doctors and citizens of the community among whom Tom finds his place as a rising young physician and a progressive citizen.

The fictitious story of Dr. Riggs will be used as a vehicle for dealing with modern medical advances such as new developments in drugs, advances in surgery, anesthesia, obstetrics and other branches of medicine. There will be a constructive attack on the problem of scarcity of physicians. How to choose a doctor, what to do until the doctor comes and other practical phases in health education will be part of the program.

Announcements will be carried in the radio columns of local newspapers. Locally, broadcasts may not be at the same time as the network broadcast, since many radio stations having a conflict between network programs and local time make a recording of the network program and broadcast it later in the day or even the next day.

APPOINTMENTS TO AMERICAN MEDICAL ASSOCIATION

Dr. William W. Bolton, who recently returned to the United States after service with the medical departments of the Ninth, Seventh and Third armies, has been appointed Assistant Director of the Bureau of Health Education. A graduate of Jefferson Medical College, Philadelphia, class of 1930, Dr. Bolton served with the Pennsylvania State Department of Health from 1935 to 1938, first as assistant director and later as director of the bureau of venereal disease control. Before entering the Army of the United States, he was on the staff of Yearbook Publishers, Chicago. Mr. George W. Cooley, since 1938 executive secretary of the Academy of Medicine of Toledo and Lucas County, has been named assistant to Mr. Thomas Hendricks, Secretary of the Council on Medical Service and Public Relations of the American Medical Association. Mr. Cooley will work on prepayment medical care plans. Mr. Cooley has served with the National Municipal League and the Cincinnati Regional Crime Commission. He is a graduate of the University of Cincinnati Post-Graduate School of Public Administration.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Personal.—Dr. Thomas Malcolm Blake has been named health officer of Winston County to succeed Dr. Hugh C. McRee, Hamilton, who resigned September 1. Dr. Marvin S. White, Hamilton, has been named to a similar position in Marion County also to succeed Dr. McRee.——Major Walter G. Haynes, M. C., has been appointed associate professor of neurosurgery and chief of the department at the Medical School of Alabama, Birmingham, effective November 1, newspapers report.

CALIFORNIA

Health Lecture Series.—The fall public relations program of the Los Angeles County Medical Association opened October 12 with a series of public health talks. The first session was devoted to "Penicillin—The Life Saving Miracle." The meeting October 19 was devoted to "The Truth About Venereal Diseases," October 26 "Preventive Medicine," November 2 "Modern Surgery" and "First Hundred Years of Anesthesia" and November 9 "Gifts of Modern Medicine." On November 16 "Blessed Events" was discussed.

Changes in Health Personnel.—Dr. Carl A. Scherer, Duluth, Minn., has been appointed health officer of the Sutter-Yuba Bi-County Health Unit, effective September 5. Before coming to California Dr. Scherer was for ten years health officer of St. Louis County, Minn., and director of Rural Health Unit 4 of the Minnesota State Board of Health.——Dr. Georgia N. Krusich, who has for the past year been head of the maternity and child care division of the Kern County Public Health Department, has been named director of a similar department for the King County (Wash.) Public Health Department.

ILLINOIS

Personal.—Robert D. Coghill, Ph.D., Peoria, has been appointed associate research director of Abbott Laboratories, effective November 1. Since 1939 he has been chief of the Fermentation Division, Northern Regional Research Laboratory, U. S. Department of Agriculture, in Peoria.

Chicago

Personal.—Mr. Ray E. Brown, formerly superintendent of the North Carolina Baptist Hospital, Winston-Salem, N. C., has been appointed assistant superintendent of the University of Chicago Clinics. He will be assistant to Dr. George Otis Whitecotton, superintendent.

Dudley Reed Retires.—Dr. Dudley B. Reed has retired at the University of Chicago School of Medicine with the title of professor emeritus of hygiene, department of medicine. Dr. Reed, who is health director of the university's student health service, retires under the age limit after thirty-four years service.

Course in Electrocardiographic Interpretation.—A course in electrocardiographic interpretation for graduate physicians will be given at Michael Reese Hospital by Dr. Louis N. Katz, Chicago, director of cardiovascular research. The class will meet each week starting Wednesday, February 13, for twelve weeks, from 7 to 9 p. m. Further information and a copy of the program may be obtained on application to the Cardiovascular Department, Michael Reese Hospital.

Class Endowment Fund Established.—A permanent endowment fund has been set up at the University of Chicago School of Medicine in the name of the class of 1944. The fund resulted from the proceeds from the sale of the first yearbook of the medical school, which was the activity of the class of 1944. According to the *Medical Alumni Bulletin* this establishes a precedent which, it is hoped, will inspire other classes to aid in placing the Medical Alumni Association on a permanently secure financial basis.

The D. J. Davis Lecture.—Dr. Carl E. Black, Jacksonville, Ill., will deliver the third annual D. J. Davis Lecture on Medical History at the University of Illinois College of Medicine, November 21. His subject will be "Medical Practice Before the Hard Roads." The Davis lecture series was established by associates and friends of Dr. David J. Davis on his retirement as dean of the college of medicine in 1943. Dr. Black is known for his collection of photographs of physicians, which has been given to the Illinois State Medical Society and which is being augmented through the work of Joseph Merante Jr., portrait photographer of New York (THE JOURNAL, March 3, p. 536).

MICHIGAN

Ninety-Four Years of Age.—Dr. Homer P. Mix, formerly of Riverside, observed his ninety-fourth birthday October 10 at the home of his daughter in Benton Harbor. Dr. Mix graduated at the Hahnemann Medical College and Hospital, Chicago, in 1880.

Harley Haynes Leaves University Hospital.—Dr. Harley A. Haynes has retired as director of the University Hospital, Ann Arbor, after serving in the position for twenty years. He has reached the automatic retirement age of the University of Michigan Medical School, Ann Arbor. Dr. Albert C. Kerlikowske, Ann Arbor, who graduated at the University of Michigan Medical School in 1923 and served his internship at the hospital, has been named director of the hospital to succeed Dr. Haynes.

New Tuberculosis Law.—On September 6 a new law covering the care of tuberculous patients in Michigan became effective. In this law, for the first time, treatment of tuberculosis is described as protection of public health, and the state or local health officer is empowered to arrange for treatment and care of persons who have the disease. This responsibility was formerly the duty of relief or welfare agencies, and the treatment of tuberculosis was considered a form of relief instead of a public health matter. One important change which will be brought about by the new law is that patients with tuberculosis no longer will be required to mortgage their securities to pay for hospital care or to make reimbursement.

Members of New Health Commission.—Dr. Charles F. Wagg, executive secretary of the former State Hospital Commission, has been named acting executive officer of the new Michigan Department of Mental Health, pending formulation and adoption of a permanent organizational structure. The new department, which was set up by the 1945 legislature, is now attempting to find a satisfactory candidate for the position of director of mental health. Members of the health commission created within the newly established department of mental health consist of the following: William J. Norton, Detroit, chairman, Mrs. Carl C. Blankenburg, Kalamazoo, Edward A. Bilitzke, West Branch, Dr. Raymond W. Waggoner, Ann Arbor, and Dr. Harry B. Zemmer, Lapeer. All activities of the State Hospital Commission are transferred to the new department of mental health, while the health commission shall be a body corporate within the department.

MONTANA

Dr. Cogswell Retires.—Dr. William F. Cogswell, Helena, executive secretary of the Montana State Board of Health, has announced his retirement, effective April 1, 1946. Dr. Cogswell joined the state board as secretary in 1912, coming from Livingston, where he had been health officer for Park County. According to *Montana Health*, Dr. Cogswell had planned to retire September 1 but extended the date to the expiration of his present appointment to give him additional time to complete a history of research on control of Rocky Mountain spotted fever. Dr. Cogswell graduated at Dalhousie University Faculty of Medicine, Halifax, in 1894. At a recent meeting of the board of health, Dr. David T. Berg, Helena, was named president, succeeding Dr. Roy V. Morledge, Billings, who becomes a member of the board. Dr. Richard C. Monahan, Butte, was named vice president.

NEW YORK

State Society Seeks Help in Compensation Expense.—The house of delegates of the Medical Society of the State of New York recently adopted a resolution pledging the society to take affirmative action toward having the state of New York assume a part of the financial expense, now borne entirely by county medical societies in New York, of administering the medical provisions of the workmen's compensation law. Dr. Joseph C. O'Gorman, Buffalo, in offering the resolution, pointed out that while the workmen's compensation law holds the county medical societies throughout the state responsible for licensing and supervising all compensation medical bureaus, it makes no provision for supplying the necessary funds to carry on the work. The action of the house of delegates paved the way for obtaining the required monies. The resolution expressed the view that all expenses incurred by

the county medical societies in this connection are costs properly chargeable to the administration of the entire workmen's compensation law. The resolution has application to fifty-seven of the sixty-one county medical societies throughout the state, the four in the Greater New York area being excluded, since the work referred to in the resolution is there performed by the state medical practice committee at the expense of the state.

Endowment Fund for Neuropsychiatry.—An endowment fund of $2,153,954 has been established for a neuropsychiatric clinic at the University of Rochester School of Medicine and Dentistry, it was announced October 30. The fund is in addition to the building fund for the new structure, the cost of which is tentatively estimated at about $600,000. Construction of the clinic is expected to start early in 1946 and it is hoped that the building will be completed within a year. The new structure will face Crittenden Boulevard adjacent to Strong Memorial Hospital and will be joined to the hospital by a corridor. It will be five stories high with a solarium on top and will contain physical and occupational therapy and recreational facilities for patients and ample laboratory space for active research and investigation. A committee of the medical school faculty has been surveying the field throughout the country to select a professor of psychiatry to head the clinic and help prepare plans for the facilities and staff organization. The clinic will be operated as a unit of the medical school and coordinated with the university's Strong Memorial and Municipal hospitals, the teaching hospitals of the school. It is contemplated that it will be used for the study and care of persons having functional nervous disorders rather than for those with extreme mental ailments. Provision will be made for beds for about 70 inpatients, and extensive use of the clinic for ambulatory patients is planned. Funds for the project were given by Mrs. Helen W. Rivas of LeRoy.

New York City

Course in Industrial Medicine.—The Long Island College of Medicine, Brooklyn, will conduct its fourth postgraduate course in industrial medicine January 14-February 1 under the auspices of the department of preventive medicine and community health. Instruction in the course will be intensive and practical and emphasis will be placed on health problems of workers under peacetime conditions. Morning, afternoon and evening sessions will be held each day during the three week period and lectures and seminars at the college will be supplemented by clinics and demonstrations in medical departments of cooperating industries, in various teaching hospitals and in governmental or other agencies active in the field. During the first week the program will be devoted to medical administration in industry, in the second week to internal medicine in industry and the occupational diseases and in the final week to industrial surgery. Provision will also be made for a limited number of those enrolled in the course to obtain subsequent additional supervised in-plant training in well established industrial medical departments. Additional information may be obtained from Dr. Thomas D. Dublin, professor of preventive medicine and community health at the medical school, 248 Baltic Street, Brooklyn.

"Model Unit" Set Up for Infantile Paralysis.—What is said to be a "model unit" for teaching and research has been started at Knickerbocker Hospital. The teaching and research aspects of the new service will be financed by a grant of $100,000 from the National Foundation for Infantile Paralysis, while $425,000 from the foundation's Greater New York chapter will pay for supply, equipment and treatment of patients. The new center is not intended to provide care for all paralysis sufferers in the city but will serve as a training center for professional personnel. When in full operation it will draw physicians from all over the country interested in treating the disease. It will give them the opportunity to study care of the disease under ideal conditions, to study the latest types of treatment. At present there are 19 patients, but 35 can be accommodated. The new unit is expected to make it possible to treat infantile paralysis cases in one hospital from the onset of the disease until final disposition instead of having patients attend several institutions at various stages of the disease for different treatment. Dr. Philip M. Stimson, associate professor of clinical pediatrics at Cornell University Medical College, New York, will direct the new service. He will be assisted by Dr. Dorothy B. Jackson, resident physician at Knickerbocker Hospital. In addition, the staff will include two physicians, five physical therapists, one occupational therapist, eighteen nurses, an executive secretary and several persons trained in the application of "hot packs." The new unit will occupy the entire fifth floor of the hospital. Phases of treatment will include pediatric care, physical therapy, rehabilitation and occupational therapy, and orthopedic support and reconstruction.

OREGON

State Medical Election.—Dr. Stanley Lamb, Portland, was named president-elect of the Oregon State Medical Society at a meeting of the house of delegates in Portland September 1-2. Dr. Lansford M. Spalding, Astoria, is president. Other officers include Drs. James C. Hayes, Medford, Burton A. Myers, Salem, Raymond M. McKeown, Coos Bay, vice presidents; Thomas S. Saunders Jr., Portland, secretary, and Cecil J. Ross, Portland, treasurer. Dr. Frank R. Mount, Portland, is delegate to the American Medical Association, with Dr. Edward H. McLean, Oregon City, as alternate.

PENNSYLVANIA

State Medical Election.—Dr. Howard K. Petry, Harrisburg, was named president-elect of the Medical Society of the State of Pennsylvania at the annual meeting in Philadelphia October 23-24. Dr. William L. Estes Jr., Bethlehem, was installed as president. The society voted to increase its dues from $10 to $20, attributing the need to the fact that for the past four years it did not receive annual dues from an average of two thousand members engaged in military service.

Philadelphia

Isaac Starr Named Dean at Pennsylvania.—Dr. Isaac Starr, Milton Bixler Hartzell research professor of therapeutics, University of Pennsylvania School of Medicine, has been elected dean of the medical school, effective November 6. As dean, he succeeds Dr. William Pepper who is retiring with the title of dean emeritus. Dr. Pepper became a member of the medical faculty at Pennsylvania in 1899 and has served as dean for thirty-three years. Dr. Starr graduated at the medical school in 1920. He joined the teaching faculty in 1922 as instructor in the department of pharmacology, subsequently serving as assistant professor of clinical pharmacology and associate in medicine. He became Hartzell professor in 1933, being the first to hold this position, which was established through the will of the late Dr. Milton B. Hartzell, who also had been a member of the faculty. With his election as dean, he resigned from the Hartzell professorship and has been appointed professor of therapeutics.

SOUTH CAROLINA

State Medical Election.—Dr. James C. McLeod, Florence, was chosen president-elect of the South Carolina Medical Association at its house of delegates meeting in Columbia, October 3. Dr. William T. Brockman, Greenville, is president. Other officers include Drs. Enoch M. Dibble, Marion, vice president, and Dr. Julian P. Price, Florence, secretary-treasurer. Dr. Hugh Thomas A. Pitts, Columbia, is delegate to the American Medical Association. Actions taken at the meeting included the increase of the annual dues of the association from $10 to $20 to help raise more funds for the society's ten point program (THE JOURNAL, June 17, 1944, p. 1505) and agreement to employ a public relations officer to act as "director of public relations and counsel" for the state association.

VERMONT

Conference on Social Welfare.—A symposium on public problems was a feature of the twenty-ninth annual conference of social welfare in Burlington, October 25-26. The theme of the meeting was Approaches to Social Security in Vermont. Dr. Frederick C. Thorne, director, Brandon State School, presided, and the following spoke:

Dr. Erval R. Coffey, Washington, D. C., medical director, U. S. Public Health Service.
Mr. W. Arthur Simpson, formerly director, Old Age Assistance Department.
Dr. Harold B. Pierce, professor of physiologic chemistry, University of Vermont College of Medicine, Burlington.
Dr. Charles F. Dalton, Burlington, executive secretary, state department of public health.

The Vermont Society for Mental Hygiene met next day, October 27, at the Fleming Museum, University of Vermont, Burlington, for the following program:

Rev. James L. Hall, Burlington, Don Bosco School.
Mr. Earle Wingate, Burlington, Training Opportunities Offered by Veterans Administration.
Mr. Francis S. Irons and Mr. Donald M. Eldred, Burlington, of the state department of education, Some Psychologic Aspects of Civilian Vocational Rehabilitation.
A member of the Alcoholic Foundation, New York, Alcoholics Anonymous.
Dr. Robert V. Seliger, Baltimore, The Psychiatrist Looks at the Alcoholic Patient.

VIRGINIA

Course on General Medicine.—The department of medicine of the University of Virginia in conjunction with the Medical College of Virginia, Richmond, is planning to offer an intensive two week refresher course in general medicine every three months for the next year. These courses will comprise lectures, clinics, ward rounds, clinicopathologic conferences and round table discussions. The first course will be held December 3-15 at the University of Virginia, and any physician wishing further details should address Box 1725, University Station, Charlottesville, Va. Those desiring information about courses to be given by the Medical College of Virginia in March and September should address Dr. Jacques P. Gray, dean, Medical College of Virginia, Richmond.

GENERAL

New Journal on Blood.—In January the first issue of *Blood—The Journal of Hematology* will make its appearance. Dr. William Dameshek, Boston, is editor-in-chief, with Drs. Charles A. Doan, Columbus, Ohio, Thomas Hale Ham, A. U. S., Edgewood Arsenal, Md., Roy R. Kracke, Birmingham, Ala., Nathan Rosenthal, New York, and Maxwell M. Wintrobe, Salt Lake City, as associate editors. Dr. George R. Minot, Boston, is consulting editor. An advisory editorial board has been named from among ranking specialists to represent all aspects of hematologic work. International interest is assured through a board of foreign contributing editors. Editorial offices are at 25 Bennet Street, Boston, and business affairs will be in the hands of Grune and Stratton, 381 Fourth Avenue, New York, who will publish the journal. The Waverly Press, Baltimore, is the printer. The journal will be published bimonthly.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the week ended November 3 have been received from the division of public health methods, U. S. Public Health Service, as follows:

	Nov. 3 1945	Nov. 4 1944
New England		
Maine	4	2
New Hampshire	0	1
Vermont	2	0
Massachusetts	20	8
Rhode Island	1	0
Connecticut	11	8
Middle Atlantic		
New York	41	145
New Jersey	13	17
Pennsylvania	13	34
East North Central		
Ohio	11	31
Indiana	8	5
Illinois	30	23
Michigan	7	24
Wisconsin	43	7
West North Central		
Minnesota	8	12
Iowa	18	6
Missouri	21	13
North Dakota	0	0
South Dakota	1	0
Nebraska	1	1
Kansas	8	4
South Atlantic		
Delaware	1	2
Maryland	9	16
Dist. of Columbia	4	0
Virginia	3	8
West Virginia	1	4
North Carolina	2	18
South Carolina	1	1
Georgia	3	3
Florida	4	4
East South Central		
Kentucky	1	9
Tennessee	11	2
Alabama	3	0
Mississippi	5	2
West South Central		
Arkansas	3	0
Louisiana	6	2
Oklahoma	3	0
Texas	8	8
Mountain		
Montana	2	1
Idaho	4	0
Wyoming	0	0
Colorado	4	0
New Mexico	2	1
Arizona	1	0
Utah	7	1
Nevada	0	0
Pacific		
Washington	4	9
Oregon	1	2
California	36	17
Total	390	451
First 44 weeks:		
1945 and 1944	12,342	17,888
Median, 1940-1944	8,713	

Award in Enzyme Chemistry.—The Paul-Lewis Laboratories Inc. of Milwaukee has established an annual award for highly important work in the field of enzymes and requested the American Chemical Society to administer the award in a manner similar to other awards administered by the society. At the recent board of directors meeting the proposal was accepted by the society. The award is to be made for the purpose of stimulating fundamental research in enzyme chemistry in the United States by young men educated in a college or university in the United States. The award is to consist of $1,000 and a bronze medal (or diploma). An additional amount up to $150 or as much thereof as necessary is available to the recipient toward traveling expenses to the national meeting of the American Chemical Society, at which the award will be presented. To be eligible, a nominee shall be a citizen of the United States and a graduate of a United States college or university, shall not have passed his thirty-sixth birthday on April 30 of the year of the award and shall have accomplished noteworthy research in enzyme chemistry. For the purpose of this award the presence of an enzyme action must be unequivocally demonstrated in the nominee's work. Nominations for this award, as well as members of the award committee, are limited to noncommercial chemists. John J. Willaman, Ph.D., of the Eastern Regional Research Laboratory of the U. S. Department of Agriculture has been appointed chairman of the canvassing committee.

Government Services

Penicillin Distribution Unit No Longer Operating

All communications regarding penicillin should be addressed to the Chemicals Division, Civilian Production Administration, Washington 25, D. C. The Civilian Penicillin Distribution Unit, formerly accepting these communications, was closed in April 1945. Information has been received indicating that inquiries are still being addressed to the Distribution Unit, which is no longer operating

New Director of Neuropsychiatric Services

Dr. Daniel Blain, New York, has been appointed director of neuropsychiatric services in the Veterans Administration. Dr. Blain, who is a commissioned officer in the U. S. Public Health Service Reserve, has been serving as psychiatrist with the War Shipping Administration. Commander Blain will direct the care of mental patients and also will supervise the establishment of additional mental hygiene clinics.

Richard Plunkett Named Field Consultant of Health and Sanitation

Dr. Richard J. Plunkett, Major, M. C., A. U. S., has been appointed field consultant for the division on health and sanitation, Institute of Inter-American Affairs. The appointment is part of the institute's plan to mold wartime cooperative advances in hemisphere health into permanent peacetime channels. Major Plunkett has already started a lengthy inspection and consulting tour which will take him to Bolivia, Chile, Uruguay, Peru, Ecuador, Colombia and the republics of Central America, according to an announcement.

Members Named to Surplus Property Unit

Hazen Dick, N. F. MacDonald and Carl E. Schwob, M.S., have been appointed by the U. S. Public Health Service to the staff of its surplus property unit. The unit, which is under the supervision of Dr. Joseph O. Dean, San Juan, Puerto Rico, senior surgeon, will assist the surplus property board in administering section 13 of the surplus property act, which gives special consideration to the needs of tax supported and tax exempt organizations for surplus property suitable for health protection use. Mr. Dick, who has been secretary of the council on administrative practice of the American Hospital Association, will serve as chief of the medical supply section. Mr. Schwob will be chief of the engineering section and Mr. MacDonald has been detailed to the hospital and medical fields in the office of surplus property.

Need for Pharmacists

There is a need for pharmacists in Veterans Administration and U. S. Public Health Service hospitals and dispensaries throughout the country. The entrance salaries are $2,320 and $2,980 per annum. Additional compensation is given for all authorized time worked over forty hours a week. Appointments to federal positions which are subject to the civil service rules and war service regulations are made through the U. S. Civil Service Commission. No fee is charged. Application may be made to the U. S. Civil Service Commission, Washington 25, D. C. Pharmacists who obtain an entrance salary of $2,320 (P-1) act as phamacist or assist the pharmacist in charge at a hospital or dispensary, compound doctors' prescriptions or other medicines, manufacture U. S. P. and N. F. preparations, keep narcotic records, maintain stocks and supplies and perform related work as required. A pharmacist who enters at $2,980 (P-2) is in charge of a pharmacy in a hospital. Positions as narcotic agents ($2,980 a year) may also be filled from the P-2 list of eligibles.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 13, 1945.

Improved Medical Services in Industry

Important recommendations for the training of medical officers, nurses and others concerned with the problem of health in industry are made in a report of the Education Committee of the Association of Industrial Medical Officers. The present facilities for the training of medical students are described as extremely scanty in London and not much better in the provinces. The report suggests that in the future all medical students should be trained to recognize that the daily occupation of a patient, the economic effect of illness and the necessity for restoring earning capacity are all important aspects of everyday practice. Students should also receive special training in accident surgery, attend lectures on occupational medicine and spend at least three days in a factory where they can learn about the normal work of the industrial medical officer. All teaching hospitals should have on the staff or available to them an industrial medical officer to give undergraduate instruction.

For postgraduates who intend to devote themselves especially to industrial medicine, a broad basic training in general medicine followed by special training of three types is recommended. These types are adapted respectively to the needs of the consultant and specialist in industrial medicine, the whole time industrial medical officer and the man who takes one of certain medical appointments, such as examining surgeon, or becomes a factory medical inspector. The committee also recommends the institution of a diploma in industrial health to be given by one of the royal medical colleges.

The training of nonmedical personnel is also recommended. Nurses should receive instruction, whole time or part time, to fit them for the important part they play in any industrial health plan. The social worker should have a wider training in industrial subjects, since she is the most important link between the hospital and industry. General education in health matters is also advocated for the staff and workers in industry—for the works manager, technicians, foremen, the workers themselves and especially the personnel manager, so that all can play an intelligent part in preventing accidents and disease.

The committee also recommends further academic appointments in industrial medicine. Already university posts of a higher type are being instituted at Manchester, Durham and Glasgow, which are great industrial centers. It is suggested that further appointments should be made at London, Birmingham and Liverpool universities.

A licensing body, the Society of Apothecaries of London, has instituted a diploma in industrial health. It will be open to physicians who have been engaged in whole time practice of industrial medicine for not less than two years, or in part time practice for not less than four years. The society understands that courses in the subject are to be held in the future. Subject to their fulfilling the society's regulations, they will be recognized as qualifying for admission to the examination.

Nazis' Last Plans for Poisoning the Invaders

A secret Nazi paper has been published by the United Nations War Crimes Commission. It reveals that a meeting of German chemical experts was held to discuss the means of poisoning the Allied invasion forces and of providing suicide tablets for the Germans themselves. These tablets were presumably used by Himmler and lesser Nazis. The paper is a report of the proceedings of a conference held under high auspices at an SS police institution in Berlin on Oct. 16, 1944.

Mobile Exhibition of Wartime Advances in Medicine

St. Mary's Hospital, where penicillin was discovered, has adopted a novel method of appealing to the public for funds required for rebuilding. This is an exhibition train of some of the wartime advances in medicine, which, starting from the Paddington terminus of the Great Western Railway, is touring the country. The coaches concerned were formally handed over to the chairman of the railway by Sir Almroth Wright, principal of the Institute of Pathology and Research of St. Mary's Hospital. Every stage in the production of penicillin is shown. DDT is exhibited not only as a destroyer of mosquitoes but as an ally to the housewife in eliminating insect pests. There is a section devoted to vitamins, with a useful guide to the choice of a balanced diet. In the section on vaccines the visitor learns in a simplified way how Sir Almroth Wright protected modern armies against typhoid. The wonders of the electrocardiograph also are shown.

PARIS

(From Our Regular Correspondent)

Oct. 6, 1945.

New Code of the Medical Profession

Before the war the Medical Professional Organizations (Syndicat des médecins) protected the professional interests and also dealt with matters of discipline and ethics. In 1936, in order to achieve the latter aim, the necessity for creating a special organization, the Order of Physicians, was discussed; war prevented its realization. The Vichy government dissolved the professional associations and created the "Order of Physicians," which dealt with functions pertaining to the profession of doctor. But the order created by Vichy was an autocratic organization, which accepted the German law, excluded Jewish doctors and sent doctors to Germany. It was constantly in conflict with the Academy of Medicine, which courageously defended the independence and the dignity of the French medical corps. Letters which your correspondent addressed to THE JOURNAL reporting this fact did not arrive because of the war.

After the liberation, the Medical Professional Organizations were reestablished by the order of the minister of public health on Dec. 15, 1944. Their activity is restricted to the professional defense of members of the organizations. In agreement with the representatives of the medical profession, the minister of public health promulgated a new code, which appeared on Sept. 28, 1945 in the *Journal officiel*. The Order of Physicians makes membership compulsory for all doctors practicing in France and in Algeria. Membership in the order entitles the physician to practice anywhere in the national territory. The Order attempts to maintain principles of morality, probity and devotion on the part of the doctor and safeguards the independence of the profession. The basic organization is the district board, which is elected for six years by doctors who must be at least 30 years old. The deliberations of the district board are not public. It does not have to take into account the political or religious opinions or attitude of the members of the Order. The regional board consists of eight members delegated by the district boards. The regional board, which alone has a disciplinary power, can inflict the following disciplinary penalties: warning, rebuke, temporary or permanent prohibition of the power of exercising medical functions in establishments of the state and of townships, temporary interdiction (up to three years) of practicing and, finally, removal of a doctor's name from the list of the Order. The doctor appearing before the board can obtain assistance either of a fellow doctor or of a barrister. After three years, expelled doctors may be reinstated in their profession.

The national board of the Order, composed of twenty-four members, is elected by the district boards for a period of six

years; to those members is added one member of the Academy of Medicine. The national board of the Order is the most important counselor of the minister of public health. It directs the work of the district boards. Its disciplinary section hears the appeals against the decisions of regional boards. A final appeal must be made to the "Conseil d'état," the highest court in the land. The Order is authorized to promote mutual help and retirement benefit organizations for the members. Similar Orders have been created for the professions of surgeon, dentist and midwife.

Hookworm Therapy of Polycythemia Vera

In a clinical lecture at the Saint Antoine Hospital, Brumpt described 8 cases of polycythemia vera treated with provoked ancylostomiasis, which was employed for the first time by Duvoir and Brumpt in 1939. The patient is infected through the skin with 400 to 700 larvae, according to his weight and the degree of polyglobulia. This infection causes gastric pains and transient diarrhea, which can be treated with opium. These painful discomforts are largely compensated for by the favorable results of the treatment. By the end of the first month the erythrocyte count has been progressively lower, reaches 4,000,000 at the end of the third month and has become normal at about the end of the sixth month. The number of leukocytes reaches a maximum of 40,000 to 60,000 the third month and then diminishes. The eosinophils comprise 75 per cent in the third month, 20 per cent in the sixth and 15 per cent after one year. A clinical amelioration becomes apparent: somnolence, headache, vertigo disappear, the blood pressure is lowered, albuminuria disappears and the urea in the blood becomes almost normal. This amelioration persists for months and years. Ancylostomotherapy is an ambulatory method, which does not in the least interrupt the patient's occupation. The action of Ancylostoma is protracted. It can, if necessary, be interrupted by administration of anthelmintics. Ancylostomotherapy is indicated in all the stages of polycythemia vera and perhaps even in certain cases of secondary polycythemia. Brumpt recommends especially this method in cases of hypertension, cardiac and renal disease and the treatment of aged patients when phenylhydrazine therapy is contraindicated; it can be associated with other treatments. Artificial ancylostomiasis is contraindicated in splenic tuberculosis with polycythemia. The author concludes that the temperature of France is not favorable to the propagation of Ancylostoma. On the other hand, Ancylostoma does not multiply in the infected patient. Notwithstanding, the treatment is not to be employed with miners, men working in a huge tunnel or patients who are likely to leave France for tropical countries.

Professor Fleming in Paris

At the invitation of the minister of public health, F. Billoux, Professor Fleming paid a visit to the Paris medical institutions. On the 4th of September he was received by the Académie de médecine in a formal meeting. G. Brouardel, president of the academy, H. Vincent and Léon Binet gave addresses. Professor Fleming replied by indicating two significant elements in his career as a scientist. First of all was chance, but, as Pasteur said, "chance favors intelligences that are ready." Secondly he emphasized that, in his opinion, the method of scientific research must be that of an isolated scientist who is able to follow the lead of an observation up to discovery. Then comes the team of scientists, without which his discovery could not have been realized and penicillin, as we use it today, developed.

Professor Fleming also visited the Pasteur Institute and the center for the production of penicillin in Paris, created on the initiative of the minister of public health and the army medical corps. He was received by General de Gaulle, chief of the provisional government, and was awarded the gold medal of the medical service and nominated Commander of the Order of Public Health.

BELGIUM

(From a Special Correspondent)

Oct. 20, 1945.

Medical Days in Brussels

In order to revive the traditional institution of the Medical Days of Brussels, which were interrupted by the war, and to prove that Belgian hospitality remains unchanged, the organizers of this meeting took the initiative of calling together a veritable medical congress. The program included a surgical morning clinic at the University Hospital and in other surgical institutions. In the afternoon there were four important conferences.

Professor E. Renaux, who directed the Belgian transfusion service during the war period demonstrated the advantages and disadvantages of blood, plasma and serum transfusions.

Professor R. Danis, with the aid of films made for the English audience, gave his conference in English on axial pressure and bone growth.

Professor André Simonart of the faculty of Louvain, recently returned from Buchenwald, described the treatment of the repatriated who suffered from malnutrition, illustrating his lecture with a film on the results of vitamin therapy.

Dr. Gustave Coryn, president of the Belgian Society of Surgery, presented results of his experience in the treatment of pulmonary abscess.

International Committee on Military Medicine

The international Committee on Military Medicine and Pharmacology met for the first time since the war in a special session in Brussels on January 29 and 30. In view of the circumstances the number of nations represented was small and comprised only the delegates from the United States, France, Great Britain, Switzerland and Belgium.

The presidency, previously held by General Reynolds, at present in Chicago, was transferred to Col. Robert B. Hill, who was informed to this effect by a telegraphic message.

It was decided to continue the publication of the *Bulletin International des Services de Santé des Armées* with the cooperation of the national correspondents of the International Office of Military Medicine and to resume all the activities of this office.

The next congress is to be held at Bern; the date will be fixed later by the Swiss government.

The committee has further decided to cooperate with the interallied surgical conference planned and organized in Paris by the administration of the health service of the French war ministry.

Marriages

Peter W. Chernenkoff, Bend, Ore., to Lieut. Ruby A. Brenden in St. Valery, France, June 27.

Douglas Jennings Jr., Bennettsville, S. C., to Miss Elizabeth Ilderton in Charleston, October 6.

Irvin Hilary Griffin, Moundville, Ala., to Miss Mabry Griner of Tuscaloosa, September 18.

John Martin Irvin, Milwaukee, to Miss Virginia Van de Sand of Fulton, Ill., September 15.

Frank L. Plachte, Los Angeles, to Miss Saralee Bender of Eureka, S. D., September 7.

Norman William Frink to Miss Kathryn Analdine Lee, both of Detroit, September 9.

Roy F. Garrison to Miss Barbara Ummel, both of Kansas City, Mo., September 3.

Deaths

Peter Bassoe ✠ Chicago, a leader in neurology and psychiatry, died at the Presbyterian Hospital, November 5, of coronary thrombosis, aged 71.

Dr. Bassoe was born in Drammen, Norway, May 18, 1874. He graduated at the Real-gymnasium, Olso Kathedralskole, in 1892, coming to the United States the following year. In 1897 he graduated at the College of Physicians and Surgeons, School of Medicine of the University of Illinois, serving his internship at the Cook County Hospital. He had been assistant physician and pathologist at the Mount Pleasant (Iowa) State Hospital from 1898 to 1900 and assistant physician at the Worcester (Mass.) State Hospital, 1901-1902. He had served as professor of neurology at Rush Medical College from 1924 to 1941, having been a member of the faculty in various capacities since 1905. He was professor of neurology at Illinois from 1941 until his death.

Dr. Bassoe had been a member of numerous societies devoted to his specialty, including the American Neurological Association, Chicago Neurological Society, Chicago Pathological Society and the Institute of Medicine of Chicago, all of which he had served as president, the Association for Research in Nervous and Mental Disease and the Central Neuropsychiatric Association. He held honorary membership in the Medical Society of Norway, Medical Society of Sweden and the Minnesota Neurological Society. He was a member of the consulting staff of the St. Francis Hospital in Evanston and the Grant Hospital, a member of the board of directors of the Norwegian American Hospital and of the staff of the Swedish Covenant Hospital. He had been a member of the Presbyterian Hospital staff for a number of years, serving as chairman of the department of neurology there since 1942. Dr. Bassoe was chairman of the Section on Nervous and Mental Diseases of the American Medical Association from 1921 to 1922 and had been a member of specialty groups concerned with psychiatry development, including the Illinois Psychiatric Research Council, an early state committee to aid in the development and care of the mentally diseased, as well as of a special group created to study sex degeneracy. He had been contract surgeon of the neuropsychiatric board and member of the medical advisory board during World War I. His extensive writings included service as editor of the "Year Book in Nervous and Mental Diseases."

Clay Alder, Chicago; University of Illinois College of Medicine, Chicago, 1915; on the staff of the Augustana Hospital; died August 13, aged 58, of chronic myocarditis, decompensation and arteriosclerosis.

Marvin Eldon Arrington, Vaiden, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1931; member of the American Medical Association; since July 1, 1933 part time health officer of Carroll County; died in the Greenwood-Leflore Hospital, Greenwood, August 8, aged 38, of injuries received in an automobile accident.

Isidor Phineas Behrman, Brooklyn; University and Bellevue Hospital Medical College, New York, 1905; member of the American Medical Association; on the staff of the Israel Zion Hospital; died in the Park East Hospital August 4, aged 62, of carcinoma.

Benjamin Hoyt Belcher ✠ Yonkers, N. Y.; University and Bellevue Hospital Medical College, New York, 1904; director of the venereal disease clinic of the city department of health; on the staff of St. Joseph's Hospital, Yonkers General Hospital, Yonkers Professional Hospital and St. John's Riverside Hospital, where he died July 31, aged 66, of cardiac failure following perforated duodenal ulcer.

James Clark Berry, Shadyside, Ohio; Starling Medical College, Columbus, 1901; died July 30, aged 73, of coronary thrombosis.

Jules M. Brady ✠ St. Louis; St. Louis College of Physicians and Surgeons, 1898; associate professor of pediatrics emeritus at the St. Louis University School of Medicine; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; fellow of the American College of Physicians; served on the staff of the DePaul Hospital; died September 6, aged 68, of chronic myocarditis.

Prentiss Agnew Brown ✠ New Kensington, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1896; member of the Radiological Society of North America, Inc.; one of the founders of the Citizens General Hospital and a director of the Logan National Bank and Trust Company; died July 19, aged 70.

William Culp Brown, Oak Park, Ill.; National Medical University, Chicago, 1895; also a dentist; died in the West Suburban Hospital August 1, aged 79, of chronic interstitial nephritis and chronic myocardial degeneration.

William Simon Brown ✠ Elgin, Ill.; College of Physicians and Surgeons of Chicago, 1894; served in the medical corps of the U. S. Army during World War I; on the staff of the American Hospital, Chicago, St. Joseph Hospital and for many years chief of staff of the Sherman Hospital, where he died August 17, aged 77, of coronary thrombosis.

Joseph V. Capel, Harrisburg, Ill.; University of Louisville Medical Department, 1893; St. Louis College of Physicians and Surgeons, 1894; member of the American Medical Association; president of the Harrisburg National Bank; died August 7, aged 78, of cerebral hemorrhage.

Chester Harlan Clark, Wells, Nev.; University of Missouri School of Medicine, Columbia, 1904; on the courtesy staff of Elko (Nev.) General Hospital, where he died July 23, aged 69, of coronary occlusion.

Henry Leo Crahan, Rutland, Vt.; University of Vermont College of Medicine, Burlington, 1903; member of the American Medical Association; served overseas as a captain in the medical corps of the U. S. Army during World War I; died in the Veterans Administration Facility, White River Junction, July 28, aged 66.

Fay E. Cramer, Hawthorne, Calif.; Creighton University School of Medicine, Omaha, 1924; served overseas during World War I; died August 6, aged 48, of cardiac thrombosis.

Alice Lavinia Kimball Darmond, Methuen, Mass. (licensed in Massachusetts in 1900 and New York in 1907); died June 24, aged 69, of carcinoma of the breast.

Cline Fleming Davidson ✠ Seattle; Johns Hopkins University School of Medicine, Baltimore, 1907; served during World War I; for many years endocrinologist at the Children's Orthopedic Hospital; on the staffs of the Swedish and Doctors hospitals; died July 21, aged 65, of coronary occlusion and Parkinson's disease.

Joseph Anthony Di Leo, Long Island City, N. Y.; Loyola University School of Medicine, Chicago, 1931; member of the American Medical Association; assistant attending surgeon at St. John's Hospital, where he died August 9, aged 39, of hypertensive heart disease.

William McGaughey Dollerhide, Oak Grove, La.; Kentucky University Medical Department, Louisville, 1904; died July 12, aged 68, of carcinoma of the liver.

William H. Enos, Alton, Ill.; Pulte Medical College, Homeopathic, Cincinnati, 1880; died in St. Joseph's Hospital July 27, aged 90, of hypostatic pneumonia.

Valentine Benjamin Fischer, Boulder, Colo.; University of Colorado School of Medicine, Denver, 1909; served as regent at the University of Colorado from 1934 to 1940; member of the American Academy of Ophthalmology and Otolaryngology; served as a medical examiner on the county draft board during World War I; died in Estes Park August 3, aged 59, of coronary thrombosis.

Andrew Barron Fitzgerald, North Creek, N. Y.; University of Vermont College of Medicine, Burlington, 1912; died July 31, aged 58, of generalized arteriosclerosis.

William E. Gibson, Issaquah, Wash.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; formerly mayor, member of the town council and state legislature; died June 28, aged 85, of senility.

John Gilbert, York, Pa.; Jefferson Medical College of Philadelphia, 1895; member of the American Medical Association; formerly school physician; died July 30, aged 77, of cerebral hemorrhage.

Abraham L. Greenberg ✠ Brooklyn; Fordham University School of Medicine, New York, 1919; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; fellow of the American College of Surgeons; on the staffs of the Beth-El and Brooklyn Jewish hospitals; died at Stamford, N. Y., July 15, aged 50, of coronary thrombosis.

Merton Lyman Griswold, Uxbridge, Mass.; University of Vermont College of Medicine, Burlington, 1896; member of the American Medical Association; died June 10, aged 77, of cerebral hemorrhage.

Russell LeRoy Guffey, San Francisco; Ohio State University College of Medicine, Columbus, 1920; died July 22, aged 52, of pneumonitis, asthma and acute dilatation of the heart.

Posey Dow Gum, West Plains, Mo.; Louisville (Ky.) Medical College, 1894; member of the American Medical Association; past president and secretary of the Howell-Oregon-Texas Counties Medical Society; on the staff of the Christa Hogan Hospital; president of the chamber of commerce; died in Kansas City July 10, aged 72, of hypostatic pneumonia.

Frederick Charles Harris, Cando, N. D.; Trinity Medical College, Toronto, Ont., Canada, 1895; formerly coroner and president of the board of health of Towner County; once a director of the North Dakota State Tuberculosis Sanatorium, San Haven; died September 15, aged 74, of coronary thrombosis.

George Tracy Haverfield, Uhrichsville, Ohio; Starling Medical College, Columbus, 1907; died in the Twin City Hospital, Dennison, July 26, aged 63, of cerebral hemorrhage.

James Decator Henderson, Boyds Creek, Tenn.; Tennessee Medical College, Knoxville, 1891; Miami Medical College, Cincinnati, 1896; member of the American Medical Association and the Ohio State Medical Association; served in the medical corps of the U. S. Army during World War I; died in the Veterans Administration Facility, Mountain Home, July 8, aged 79, of disease of the central nervous system.

William Hindle ✠ Providence, R. I.; Harvard Medical School, Boston, 1903; member of the New England Pediatric Society; superintendent of the Charles V. Chapin Hospital, where he died July 26, aged 69, following an operation for thrombophlebitis of the popliteal vein.

Francis Roderick Holbrook ✠ Des Moines; University of Pennsylvania Department of Medicine, Philadelphia, 1904; president of the Polk County Medical Society in 1931; served in the medical corps of the U. S. Army during World War I; medical director of the Solar Aircraft Company; on the staffs of the Iowa Methodist Hospital and the Mercy Hospital, where he died July 25, aged 64, of multiple myeloma.

Gerry Rounds Holden ✠ Jacksonville, Fla.; Johns Hopkins University School of Medicine, Baltimore, 1901; served as president of the Florida Medical Association; member and past president of the Southeastern Surgical Congress; member of the Southern Surgical Association and the South Atlantic Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; consulting gynecologist, Flagler Hospital, St. Augustine, and St. Luke's and Duval County hospitals; died July 21, aged 70.

Thomas Milton Holmes ✠ Delmar, N. Y.; Albany Medical College, 1909; served as a member of the medical board of the State Employees Retirement System; received the Purple Heart for service during World War I; died July 15, aged 63.

Charles John Hufnagel ✠ Richmond, Ind.; University of Louisville Medical Department, 1914; president of the Wayne-Union Counties Medical Society; served two years in France during World War I; surgeon on the staff of the Reid Memorial Hospital; died in Chicago July 22, aged 55, of coronary occlusion.

Thomas Lee Hutton ✠ Hartsburg, Ill.; Barnes Medical College, St. Louis, 1908; died in the Deaconess Hospital, Lincoln, July 20, aged 66, of heart disease.

James Marcus Jackson New Salem, Pa.; Harvard Medical School, Boston, 1900; Western Pennsylvania Medical College, Pittsburgh, 1902; member of the American Medical Association; died July 4, aged 68.

Edwin Brown Jenks ✠ Diamond Point, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1901; died July 17, aged 68, of coronary thrombosis.

Roland Joseph Joyce Nashua, N. H.; Tufts College Medical School, Boston, 1920; member of the American Medical Association; served as president of the Hillsborough County Medical Society; on the staffs of St. Joseph's and Memorial hospitals; died in the Phillips House, Boston, July 8, aged 49, of malignant tumor of the brain.

John W. Kramps, Chicago; Rush Medical College, Chicago, 1898; on the staffs of the Alexian Brothers' Hospital, St. Anne's Hospital and St. Elizabeth Hospital, where he died August 16, aged 77, of arthritis and heart disease.

Samuel Leventhal ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1923; associate physician at the Bushwick and Lutheran hospitals; died July 11, aged 48, of carcinoma of the lung.

Edwin G. Low, Bangor, Mich.; Chicago Homeopathic Medical College, 1898; member of the American Medical Association; on the staff of the Borgess Hospital in Kalamazoo; died July 12, aged 84, of carcinoma of the large intestine.

Charles McDowell, Brooklyn; New York Homeopathic Medical College, 1878; member of the board of trustees and emeritus professor of physiology and public health at his alma mater, now known as the New York Medical College, Flower and Fifth Avenue Hospitals; died in St. John's Hospital August 31, aged 87, of toxemia following a fractured hip incurred in a fall.

John Henry Molinelli ✠ West Pittston, Pa.; Regia Università di Torino Facoltà di Medicina e Chirurgia, Turin, Italy, 1900; vice president and director of the Liberty National Bank in Pittston; on the staff of the Pittston (Pa.) Hospital, where he died July 21, aged 71, of cardiorenal disease.

Abraham Lear Morris, Chicago; Bennett Medical College, Chicago, 1912; member of the American Medical Association; died in the Woodlawn Hospital July 27, aged 62, of cerebral hemorrhage.

Millard Tarsten Nelsen ✠ Tacoma, Wash.; Washington University School of Medicine, St. Louis, 1921; member of the Pacific Coast Surgical Association and the North Pacific Surgical Association; fellow of the American College of Surgeons; member of the surgical staff, Tacoma General and St. Joseph's hospitals; attending surgeon, Pierce County Hospital; consulting surgeon, Veterans Administration Hospital, American Lake; died July 2, aged 47.

Harry Ostrer, Boston; Middlesex College of Medicine and Surgery, Cambridge, 1923; died July 16, aged 52, of cerebral thrombosis.

William Anneslay Patterson, Gansevoort, N. Y.; University of the City of New York Medical Department, New York, 1887; died July 25, aged 83, of fractured hip due to a fall, arteriosclerosis and pernicious anemia.

Maurice Mesha Perlson, Milwaukee; Marquette University School of Medicine, Milwaukee, 1927; served as school physician; formerly on the staff of the Mount Sinai Hospital; died July 25, aged 43, of coronary thrombosis.

John William Primrose, Clarksdale, Miss.; Memphis (Tenn.) Hospital Medical College, 1902; member of the American Medical Association; on the staff of the Clarksdale Hospital, where he died July 16, aged 65, of mitral regurgitation.

Thomas Ennis Pugh, Kansas City, Kan.; Atlanta Medical College, 1914; member of the American Medical Association and the Medical Association of Georgia; served with the British government during World War I; formerly on the staffs of various Veterans Administration facilities; died in the University of Kansas Hospitals July 18, aged 51, of tuberculosis.

Rezin J. Pumphrey, Lake Worth, Fla.; Cincinnati College of Medicine and Surgery, 1885; fellow of the American College of Surgeons; formerly on the staff of the City Hospital in Massillon, Ohio; died in West Palm Beach July 20, aged 83, of nephrosclerosis and arteriosclerotic heart disease.

Hauphrey Helm Sherwood ✠ Kirkland, Wash.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; died in Seattle July 2, aged 73, of coronary disease.

Joseph Arthur Smith, Athol, Mass.; Boston University School of Medicine, 1898; for many years school physician; served for several terms on the school board; a member of the draft board during World War I; died July 17, aged 70.

John Stile, Alturas, Calif.; Cooper Medical College, San Francisco, 1900; served as health officer of Modoc County; died in the Woodland Clinic Hospital, Woodland, July 13, aged 69.

William Sylvester Streker ✠ Providence, R. I.; Jefferson Medical College of Philadelphia, 1908; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; on the staff of St. Joseph's Hospital; died in Barnstable July 8, aged 59, of coronary thrombosis.

Robert John Styers, Amelia C. H., Va.; University College of Medicine, Richmond, 1911; member of the American Medical Association; served overseas during World War I; died in the Stuart Circle Hospital, Richmond, July 24, aged 59.

Wallace Henry Tarbell ✠ Contoocook, N. H.; University of Vermont College of Medicine, Burlington, 1902; served as health officer and member of the school board; on the staffs of the Margaret Pillsbury General and New Hampshire Memorial hospitals in Concord; died July 20, aged 73, of coronary thrombosis.

Adrian Langley Zemmer, Port Huron, Mich.; Wayne University College of Medicine, Detroit, 1934; member of the American Medical Association; accidentally drowned July 8, aged 40.

Correspondence

THE INCIDENCE OF DIABETES

To the Editor:—The article by Spellberg and Leff on the incidence of diabetes and glycosuria in inductees (THE JOURNAL, September 22, p. 246) will be welcomed by every one interested in the incidence of the disease. Such surveys should be carried out still more extensively.

May I comment on the reference of the authors to my Arizona experience? Having noted that in 1937 the diabetic mortality in New York was 42 and in Rhode Island 36.9 but in Arizona only 10 per hundred thousand, with the cooperation of the doctors in Arizona a study was made of the morbidity of diabetes in that state. Whereas mortality records showed great differences between Rhode Island and Arizona, when we made a survey of the state it was found that the morbidity was approximately the same in the two states (see Joslin, E. P.: The Universality of Diabetes, THE JOURNAL, Dec. 14, 1940, p. 2033).

Some of the findings were as follows: 1. Whereas Jews made up 0.5 per cent of the inhabitants of Arizona, they comprised 2 per cent of the total with diabetes (755). 2. Deaths of Indians from diabetes averaged 2 per year for the six years 1934 to 1939, but in the survey 73 Indians with diabetes were discovered or approximately the same percentage of all the diabetic as of Indians in the whole population. 3. In the prison and in the mental hospital in Arizona more diabetic inmates were found proportionately than in similar institutions in the East and more than would be expected by the National Health Survey. 4. Diabetes was acknowledged by 1 in 42 doctors of 334 reporting in Arizona and by 1 in 36 of 393 reporting in Rhode Island. 5. In the state as a whole there were 755 diabetic patients reported by the 290 doctors, who stated that they had or had not diabetic patients in their care, or 2.8 per doctor.

Diabetes is universal. The incidence is highest where (1) the average age is oldest, (2) women predominate, (3) obesity is most frequent, (4) the proportion of Jews is greatest, (5) medical supervision is closest and (6) deaths are most accurately reported.

ELLIOTT P. JOSLIN, M.D., Boston.

SULFATHIAZOLE IN PLASTIC VEHICLE

To the Editor:—A review of the article by Draeger and Pijoan on Treatment of Impetigo Contagiosa with Sulfathiazole in an Alcoholic Plastic Vehicle (THE JOURNAL, August 11, p. 1096) fails to reveal any mention of a control series of treatment with the vehicle minus the sulfathiazole. This a serious defect. Clinicians have recognized for decades the feasibility of successful treatment of impetigo contagiosa by occlusive dressings alone. It is important to have the authors indicate in a supplementary report the results in impetigo contagiosa of application of their alcoholic plastic vehicle without sulfathiazole.

On the basis of insufficient clinical study, liquid provinyl acetate dressing inhibits growth of pus forming bacteria on the skin surface and in superficial injuries. Application of 55 per cent ethyl alcohol is also known to be a deterrent to bacterial growth. Its equivalent was the major volume of the alcoholic plastic vehicle of Draeger and Pijoan.

HERMAN GOODMAN, M.D., New York.

[On receiving a copy of Dr. Goodman's communication, Captain Draeger replied:]

To the Editor:—The emphasis which Lieutenant Pijoan and I intended to place in our paper was on the vehicle and its convenience, not on the incorporated sulfathiazole. Sulfadiazine in dimethoxy cellulose was used without alcohol in an aqueous medium for the treatment of impetigo (*Southwest. Med.* **27**:118 [May] 1943) and in the treatment of burns and other infections (*Bull. Johns Hopkins Hosp.* **69**:217 [Aug.] 1941; **71**:304 [Nov.] 1942). In these reports the dimethoxy cellulose was dissolved in water and not in alcohol. The introduction of alcohol was not for its therapeutic action but rather to increase the drying rate, a practical point in convenience. However, dimethoxy cellulose apparently did limit the spread of the infection. In this light the conclusion which we expressed may be considered as not well worded.

R. H. DRAEGER, CAPTAIN (MC), U. S. Navy.

DOCTORS' MARK

To the Editor:—The subject discussed by Dr. Ronchese in his article "Personal Identification" in the July 28 issue of THE JOURNAL is very interesting, and the article itself is excellent. However, in his discussion of the signs, or stigmas, of the various trades and professions I found no reference to the one that often identifies the physician. This consists of an obvious bony swelling over the dorsal surface of the middle phalanx of the middle finger of the left hand, the result of repeated percussion during examinations of patients' hearts and lungs.

FRANK COLE, M.D., Duluth, Minn.
Director, Department of Anesthesiology, St. Mary's Hospital.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, Nov. 10, page 766.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Mar. 19-21. Sec. Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.

CONNECTICUT: * *Endorsement.* Hartford, Nov. 27. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven.

DELAWARE: *Examination.* Dover, Dec. 12. *Endorsement.* Dover, Dec. 19. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA: * Jacksonville, Nov. 26-27. Sec., Dr. Harold D. VanSchaick, 2736 S. W. Seventh Ave., Miami 36.

IDAHO: Boise, Jan. 15. Dir., Bureau of Occupational Licenses, Miss Agnes Barnhart, 355 State Capitol Bldg., Boise.

KANSAS: Topeka, Dec. 6. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.

KENTUCKY: Louisville, March 25-27. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville 2.

MARYLAND: *Medical.* Baltimore, Dec. 11-15. Sec., Dr. J. T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 11-12. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 20-23. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

NORTH DAKOTA: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OKLAHOMA: * Oklahoma City, March 23. Sec., Dr. J. D. Osborn Jr., Frederick.

OREGON: * Jan. 23-26. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland 4.

PENNSYLVANIA: Harrisburg, January. Act. Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

SOUTH DAKOTA: * Pierre, Jan. 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

VERMONT: Burlington, March or April 1946. Sec., Dr. F. J. Lawliss, Richford.

WISCONSIN: * Madison, Jan. 8-10. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

OKLAHOMA: Oklahoma City, Jan. 21. Sec., Dr. J. D. Osborn Jr., Frederick.

SOUTH DAKOTA: December. Sec., Dr. J. D. Alway, Aberdeen.

WISCONSIN: Milwaukee, Dec. 1. Sec., Prof. Robert N. Bauer, 152 W. Wisconsin Ave., Milwaukee.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

30:109-214 (Aug.) 1945

Alteration in PR Interval Associated with Change in Posture. G. W. Manning and C. B. Stewart.—p. 109.
Congenital Heart Disease: Case Reports on 3 Members of Family. I. Stein and D. J. Barber.—p. 118.
Strain of Pectoralis Minor Muscle, Important Cause of Precordial Pain in Soldiers. M. Mendlowitz.—p. 123.
Oral Single-Dose Digitalization with Digitalis Leaf and Digitaline "Nativelle." L. N. Katz and W. Wise.—p. 125.
Cardiac Aneurysm with Rupture. R. L. Fisher.—p. 133.
Electrocardiogram in Hypertension: I. Its Description. E. Evans, Marion Mathews and P. D. White.—p. 140.
Id.: II. Effect of Radical Lumbodorsal Sympathectomy (Preliminary Report). P. D. White, R. H. Smithwick, Marion W. Mathews and E. Evans.—p. 165.
Id.: III. Electrocardiograms of Hypertensive Patients Followed for a Long Time Without Splanchnic Resection in Comparison with Those in Patients Who Had Had Splanchnic Resection. E. Joaquin Canabal, H. F. Warneford-Thomson and P. D. White.—p. 189.
*Clinical Observations with Cerberin. G. Bond, H. Baum and G. Dimond. —p. 194.

Clinical Observations with Cerberin.—Bond and his associates felt that the effect of cerberin, an extract from the kernel of Cerbera odollam, a tree native of India and the Dutch East Indies, could best be demonstrated in patients with auricular fibrillation. They selected patients who had not received previous digitalis medication. On admission each patient was given complete rest in bed, with sedation if necessary, for eighteen to twenty-four hours, and in 2 cases as much as ten days' rest in bed was maintained before medication was begun. This was done to discount the effect of rest on the fibrillation before the drug was given. In the first 10 cases cerberin was given intravenously, while in the last 5 an oral preparation was used. Fourteen of the 15 patients treated with the drug had auricular fibrillation and 1 was in congestive failure with a regular rhythm. Auricular fibrillation was controlled satisfactorily with the intravenous or oral use of cerberin. Its effect is much more rapid than that of digitalis and more transitory after the drug is discontinued. No untoward effects were noted when therapeutic doses were used.

American Journal of Clinical Pathology, Baltimore

15:263-304 (July) 1945

Spinal Fluid Protein and Colloidal Mastic Tests: I. E. A. Fennel. —p. 263.
Plasma Vitamin A Level in Renal Diseases. H. Popper, F. Steigmann and Hattie A. Dyniewicz.—p. 272.
Production of Rh Antiserum in Guinea Pigs Through Inoculation with Human Red Blood Cells. Bettina B. Carter.—p. 278.
Observations on Sensitization to Rh Factor by Blood Transfusion. L. J. Unger and A. S. Wiener.—p. 280.
Pathology of Anuria in Rh Negative Patient. V. J. Dardinski.—p. 286.
*Food Poisoning: Importance of Method of Presentation of Medicolegal Evidence. H. A. Heise.—p. 289.
Determination of "Sulfate Index" as Measure of Degree of Exposure to Benzene Vapor. W. S. Hoffman and Bess Osgood.—p. 293.
Coarctation of Aorta with Congenital Bicuspid Aortic Valve and Dissecting Aneurysm of Arch of Aorta. R. B. Lewis.—p. 297.

Food Poisoning.—Heise describes a case of food poisoning involving legal action against a food distributing company. The offending food was a salad containing canned sea foods, macaroni, mayonnaise and celery. A medical witness for the complainant contended that the sea food was the most likely source of contamination and that this contamination occurred before the cans were opened. In presenting medical testimony for the defense, a salad was prepared according to the method used in making the original salad, and this salad was then tested for bacterial contamination. The experiment indicated that the celery and the mayonnaise were possible sources of contamination. The actual cultures of the ingredients of the salad, as well as cultures of the salad itself made at various times, failed to impress a jury and the canning company was adjudged guilty. However, a supreme court which reviewed the evidence including photographs of the cultures reversed the decision and dismissed the case.

American Journal of Medical Sciences, Philadelphia

210:141-280 (Aug.) 1945

Comparison of Behavior of Microcrystalline Sulfadiazine with That of Ordinary Sulfadiazine in Man. J. G. Reinhold, F. J. Phillips and H. F. Flippin, with technical assistance of Lillian Pollack.—p. 141.
Penicillin—Its Present Status in Treatment of Infections. C. S. Keefer. —p. 147.
Study of Types of Hypersensitivity Induced by Penicillin. A. Rostenberg Jr. and H. Welch.—p. 158.
Effect of Sodium Salicylate on Sedimentation Rate of Erythrocytes in Vitro. F. Homburger.—p. 168.
Erythrocyte Sedimentation Rate in Rheumatic Fever: Its Significance in Adolescent and Overweight Children. T. N. Harris.—p. 173.
Experiments on Components A and B (Quick) of Prothrombin. W. J. Oneal and C. R. Lam.—p. 181.
Hemolytic Transfusion Reactions Due to Rh Factor: Report of 2 Cases. A. W. Frisch.—p. 184.
Acceptability and Effectiveness of Condom as Contraceptive Method. C. Tietze and J. B. Hagaman.—p. 189.
Magnesium Partition in Hyperthyroidism, with Special Reference to Effect of Thiouracil. G. W. Bissell.—p. 195.
Vitamin Levels in Sprue. D. Cayer, J. M. Ruffin and W. A. Perlzweig —p. 200.
*Early Filariasis (Bancrofti) in American Soldiers. I. G. Hodge, E. Denhoff and J. B. Vander Veer.—p.207.
*Tularemic Pneumonia: Review of American Literature and Report of 15 Additional Cases. B. M. Stuart and R. L. Pullen.—p. 223.
Osteomyelitis Caused by Granuloma Inguinale: Report of Case with Cultivation of Donovan Body in Yolk Sack of Developing Chick Embryo. W. H. Sheldon, B. R. Thebaut, A. Heyman and Margaret J. Wall.—p. 237.
Hemochromatosis Associated with Primary Adenocarcinoma of Liver: Case Illustrating Diagnostic Features. J. A. Oshlag and R. F. Martin, with Pathologic Report by C. H. Binford.—p. 245.

Early Filariasis in American Soldiers.—Hodge and his associates present observations on 62 soldiers who were diagnosed as having filariasis. The 62 cases of early filariasis are divided into five groups: Group 1 comprised 47 cases characterized by genital manifestations. The 13 patients of group 2 had superficial lymphangitis of the extremities. Sixteen patients of group 3 had multiple lesions. The patient designated as belonging to group 4 had symptoms suggestive of involvement of the deep lymphatics. The authors placed in group 5 asymptomatic cases with microfilariae in the blood; only 1 of their patients belonged to this group. Laboratory studies were fairly complete on 50 of the 62 clinical cases. These included complete blood counts, frequent differential leukocyte counts, examinations of the blood, aspirated fluids and urine for microfilariae. Histopathologic and bacteriologic studies were performed on several lymph nodes. Examination revealed microfilariae in only 2 of 266 soldiers exposed to filariasis. Eosinophilic infiltration was the most constant finding. The additional findings of fibroblastic proliferation, focal necrosis and hyalinization further suggest that the changes are due to an allergin. The authors believe that the early manifestations are due to an allergin present in or produced by living adult filariae. The clinical diagnosis is not dependent on the finding of adult filariae or microfilariae. Clinical manifestations may be multiple and are subject to recurrences. The prognosis must be guarded, but in the light of the present knowledge it appears to be favorable if reinfection is prevented. Some of the early cases may be carriers, and rigid mosquito control should be carried out until more is known regarding the status of these patients.

Tularemic Pneumonia.—Stuart and Pullen state that of the 268 cases of tularemic pneumonia available for study in the American literature (including 15 cases of their own) a history of contact with animals was available in 115. Only 171 of the 268 patients (63.8 per cent) had ulceroglandular, oculoglandular or glandular types of the disease, whereas 97 cases (36.2 per

cent) had no demonstrable primary lesions or lymphadenopathy and may be classified as the typhoidal type of infection. Symptoms presented by patients with tularemic pneumonia fall into two general groups: In the first group the pneumonia is associated with the ulceroglandular, glandular or oculoglandular types of tularemic infection and may occur from one or two days to many months after the localized infection elsewhere has developed. In the second group, evidence of ulceration and lymphadenopathy is lacking. In these cases of typhoidal or cryptogenetic type of tularemia the infection frequently appears to originate as a primary pneumonia, suggesting that the infection may have entered through the respiratory tract. In this group the onset may be sudden with a chill, fever, dyspnea, cough, pain in the chest and profuse sweating. The cough may or may not be productive. These patients appear extremely ill and are frequently suspected of having typhoid. The physical signs of tularemic pneumonia vary with the type and distribution of the lesions. Both lungs are frequently involved. In general the physical findings are those of an atypical pneumonia. Physical examination of the chest may reveal no abnormal findings even though pleuropulmonary involvement can be demonstrated roentgenographically. Hence, roentgenographic studies of the chest of any patient with tularemia are advisable. Of the 225 patients with tularemia observed at the Charity Hospital of Louisiana at New Orleans, 21 (9.33 per cent) had accompanying tularemic pneumonia. The incidence of tularemic pneumonia is distinctly greater in the typhoidal forms than in the ulceroglandular. Pleuropulmonary involvement developed in only 13 (7.1 per cent) of 181 cases of ulceroglandular tularemia, whereas clinical tularemic pneumonia developed in 8 cases of typhoidal tularemia. Of the 21 patients with tularemic pneumonia, 12 died. Although the incidence of tularemia in Negro patients as compared to white patients is proportional to the total admissions of white and Negro patients at Charity Hospital for the same period of time, it would seem that Negroes are particularly lacking in resistance once they have developed the pulmonic forms of the disease. This is evidenced by the fact that 16 of the 21 patients of tularemic pneumonia were Negroes and that 11 of these 16 patients died. Only 1 white patient died, and this may be attributed in part to an uncontrolled diabetes mellitus. In patients who recovered, the average duration of the pneumonia was thirty days.

American J. Obstetrics and Gynecology, St. Louis

50:119-234 (Aug.) 1945. **Partial Index**

Further Experiences in Use of Transplanted Abdominal Fascia in Relief of Stress Incontinence. W. E. Studdiford.—p. 119.
*Treatment of Hypo-Ovarianism by Sequential and Cyclic Administration of Equine and Chorionic Gonadotropins—So-Called One-Two Cyclic Gonadotropic Therapy: Summary of Five Years' Results. E. C. Hamblen and C. D. Davis.—p. 137.
Effect of Respiratory Stimulants in Newborn Infant. Kha Ti Lim and F. F. Snyder.—p. 146.
Therapy in Habitual Abortion. C. H. Ingram Jr.—p. 154.
Catharina Geertruida Schraders and Her Diary: Note on History of Obstetrics and Especially on History of Placenta Previa. A. A. Marchetti.—p. 160.
Pathogenesis of Postabortal Peritonitis: Study of 61 Cases. H. C. Falk and G. Blinick.—p. 168.
Studies Concerning Morbidity and Mortality Following Hysterectomy. J. H. Phillips.—p. 174.
Five Years' Experience with Caudal Anesthesia in Private Obstetric Practice. A. Baptisti Jr.—p. 180.
Quadriovular Quadruplet Pregnancy. B. P. Watson.—p. 184.
Peritoneal Staining Technic for Extraperitoneal Cesarean Section. G. A. Bourgeois.—p. 191.
Relationship of Maternal Weight Gain and Weight of Newborn Infant. J. S. Beilly and I. I. Kurland.—p. 202.
Coccidioidal Pelvic Inflammatory Disease. E. W. Page and L. M. Boyers.—p. 212.
Simple Technic to Test Tubal Patency. A. Decker.—p. 227.

Hypo-Ovarianism Treated with Gonadotropins.—Hamblen, Davis and their co-workers showed that cyclic administration of equine gonadotropin during the follicular phase of the cycle failed to result in progestational bleeding or in pregnancy in women who bled from interval or estrogenic endometriums, in many of whom ovarian sterility constituted a major problem. When a similar group of women was treated with the same equine gonadotropin but, in addition, was given injections of chorionic gonadotropin from the fifteenth through the twenty-fourth day of their cycles there occurred a substantial number of progestational endometriums and a number of pregnancies. This therapeutic schedule was named one-two cyclic gonadotropic therapy. A total of 116 hypo-ovarian patients were treated by the sequential and cyclic administration of equine and chorionic gonadotropins. Only 1 of 7 patients with deficient sexual maturation and nonoccurence of menarche (hypoestrogenism) yielded a progestational endometrium during therapy. Four of 13 patients with infrequent and/or scanty estrogenic uterine bleeding yielded progestational endometriums during therapy. Fifteen of 31 patients with prolonged and/or excessive estrogenic bleeding yielded progestational endometriums during therapy. Seven of 14 patients with cyclic estrogenic bleeding and ovarian sterility yielded positive responses, including 4 pregnancies. Nine of 50 patients with cyclic bleeding from immature progestational endometriums became pregnant during therapy. The following conclusions are reached: 1. Patients with hypoestrogenism (as illustrated by those with deficient sexual maturation) respond poorly to this system of gonadotropic therapy. 2. Patients with anovulatory ovarian failure without hypoestrogenism (as illustrated by those with diverse types of estrogenic bleeding) respond well to this system of therapy: a total of 44.8 per cent yielded progestational endometriums. 3. A small percentage of sterile women, whose bleeding from immature progestational endometriums constitutes the only significant finding, become pregnant when treated with one-two cyclic gonadotropic therapy.

American Journal of Ophthalmology, Cincinnati

28:823-942 (Aug.) 1945

*Isolation and Identification of Causative Agent in Epidemic Keratoconjunctivitis (Superficial Punctate Keratitis) and Herpetic Keratoconjunctivitis. A. E. Maumenee, G. S. Hayes and T. L. Hartman.—p. 823.
Thrombosis of Retinal, Choroidal and Optic Nerve Vessels: Pathologic Study. A. Loewenstein and A. Garrow.—p. 840.
Treatment of Nonspecific Uveitis with Penicillin. S. R. Irvine, F. Maury, J. Schultz, P. Thygeson and A. Unsworth.—p. 852.
Status of Compensation for Ocular Injuries in United States: Some Fundamental Considerations. M. Davidson.—p. 856.
Experimental and Clinical Studies on Certain Safety Factors in Closure of Cataract Incisions: Results in 187 Operations. A. C. Hilding.—p. 871.
Surgical Reconstruction of Upper Lid. E. B. Hague.—p. 886.
Orthoptic Fictions and Misconceptions. Louisa Wells.—p. 890.
Heredity as Factor in Squint. Lillian P. Darr.—p. 898.

Epidemic and Herpetic Keratoconjunctivitis.—Maumenee and his associates report isolation and identification of two closely related but apparently different viruses obtained from the eyes of 6 patients with the typical clinical picture of epidemic keratoconjunctivitis. Material for mouse brain inoculation was obtained from the patients' eyes by washing the lower conjunctiva with 0.5 cc. of Simms's Z solution, which was collected and placed in sterile ampules. To the washings were added several scrapings from the conjunctiva made with a platinum spatula. The material was inoculated intracerebrally into mice, which were killed with gas as close as possible to the termination of their illness. The brains were removed and ground, and a 10 per cent emulsion was centrifuged. The supernatant fluid was pipetted off and either used immediately or frozen and stored. A portion of this supernatant fluid was cultured for evidence of chance bacterial contamination. Corneal inoculations were made in the rabbit by scarifying the corneal epithelium with a syringe needle and rubbing conjunctival scrapings taken from the patient's eye directly on the cornea. Passage material was obtained from the rabbits' eyes. It was found that herpes simplex virus can cause a keratoconjunctivitis which is clinically almost identical to that caused by the epidemic keratoconjunctivitis virus. In spite of the similarity in the clinical picture and the cross immunologic reactions of the two viruses, they are thought to be separate entities but are probably of the same genus. Intranuclear inclusion bodies produced by the epidemic keratoconjunctivitis virus have been demonstrated experimentally for the first time. Methylthionine chloride therapy for herpes and epidemic keratoconjunctivitis appears to be of some value in the early stages of these diseases.

American Journal of Public Health, New York

35:783-890 (Aug.) 1945

Tuberculosis Mortality in England and Certain Other Countries During the Present War. J. A. Doull.—p. 783.
Epidemiologic Observations on Use of Glycol Vapors for Air Sterilization. E. Bigg, B. H. Jennings and F. C. W. Olson.—p. 788.
Does Health Education Prevent Venereal Disease? The Army's Experience with 8,000,000 Men. G. W. Larimore and T. H. Sternberg. —p. 799.
Amebiasis in Hospital for Insane. W. B. Birnkrant, M. Greenberg and H. Most.—p. 805.
*Successful Treatment of Experimental Western Equine Encephalomyelitis with Hyperimmune Rabbit Serum. J. Zichis and H. J. Shaughnessy.—p. 815.

Hyperimmune Rabbit Serum in Western Equine Encephalomyelitis.—Fifty-five guinea pigs were treated with specific hyperimmune rabbit serum of 500 to 1,000 units when they became sick following intralingual injection of western equine encephalomyelitis virus. Of this number 67.3 per cent recovered. Of the 41 guinea pigs used as controls, 1 recovered spontaneously and 40 died. Serotherapy was less effective in rhesus monkeys, giving a recovery rate of 45.5 per cent against no recoveries in the control group. These animals were treated with serum at the onset of fever following intracerebral injection of the virus. By this method of injection the virus produces a fulminating type of the disease which is more difficult to treat. A western equine encephalomyelitis antiserum has been prepared by hyperimmunization of rabbits which is effective in treating the experimental disease even after the animals showed evidence of central nervous system involvement. It is believed that the successful treatment of the disease in these experiments can be attributed to the use of adequate quantities of antiserum of high potency administered by a route which made the serum antibodies readily available to the animal.

Annals of Internal Medicine, Lancaster, Pa.

23:135-308 (Aug.) 1945

*Penicillin in Suppurative Disease of Lungs Due to Streptococcus Hemolyticus. H. J. F. Kullman and J. A. Crellin.—p. 135.
Upper Respiratory Infections: Résumé of Recent Pertinent Data and Observations of Incidence Aboard a Destroyer. W. H. Harris Jr. —p. 147.
Functional Consequences of Coronary Occlusion. C. J. Wiggers.—p. 158.
Lymphocytosis in Cerebrospinal Fluid. I. L. Applebaum, J. Shrager and W. Paff.—p. 170.
Neuroses in Combat Zone. W. J. Bleckwenn.—p. 177.
*Neuropsychiatric Complications Following Spinal Anesthesia. H. E. Yaskin and B. J. Alpers.—p. 184.
Atrophic Arthritis Associated with Splenomegaly and Leukopenia. F. N. Hatch.—p. 201.
Oliguria and Anuria Due to Increased Intrarenal Pressure. J. T. Peters. —p. 221.

Penicillin in Pulmonary Suppuration.—Kullman and Crellin report 2 cases of lung abscess resulting from sulfonamide resistant Streptococcus hemolyticus pneumonia. They were successfully treated by parenteral penicillin therapy. In the first patient, who received a total of 3,020,000 units over a period of twenty-four days, the penicillin was given on the first day by continuous intravenous drip and thereafter in doses of 15,000 units at three hour intervals. The second patient received a total of 1,475,000 units over a period of fourteen days. These cases prove the absorption of penicillin through thin walled cavities when treated over a sufficient period of time. The sputum became negative for hemolytic streptococci in three and two days, respectively. Complete healing, demonstrated by roentgenogram, occurred in twenty-six and thirty-four days, respectively. Four patients with Streptococcus hemolyticus empyema were successfully treated by intrapleural injection of penicillin supported by intravenous and intramuscular use of the drug. Two of these patients were classified as sulfonamide resistant. The other 2 had had insufficient sulfonamide to be classified as such. The latter were moribund. Thoracotomy was obviated in all cases of empyema. No evidence of reinfection or recurrence has occurred in any of these cases. Aspirated pleural fluid remained sterile after twenty-four to thirty-six hours, when the intrapleural treatment was supplemented by intravenous and, later, by intramuscular penicillin. The patient receiving only intrapleural penicillin retained an infected pleural space until the sixth day after treatment was started. Success or failure may depend on the supplemental parenteral administration of penicillin. Residual fibrosis and subjective slight dyspnea necessitated return to a limited duty status in 1 patient. The 3 other patients returned to a full duty status in 125, 126 and 151 days, respectively.

Complications Following Spinal Anesthesia.—Yaskin and Alpers report 6 instances of neuropsychiatric complications following spinal anesthesia. They also mention a case of metastatic spinal cord neoplasm which was discovered after spinal anesthesia in which the anesthetic agent was for a while suspected as being the cause of the myelitic syndrome. In 4 of the patients the complications occurred immediately following the use of the anesthetic agent. They presented syndromes of serious myelitic or myeloradicular nature. Little or no recovery occurred. Two of the reported cases were in the nature of conversion hysteria "paralysis" of the lower extremities. The conversion mechanism was conditioned by the patient's subjective experience with spinal anesthesia. The case of metastatic spinal cord neoplasm is presented to illustrate the importance of keeping in mind the possibility of preexisting neurologic disease when evaluating the role of spinal anesthesia in the causation of postoperative neurologic sequelae.

Annals of Surgery, Philadelphia

122:129-288 (Aug.) 1945

*Observations on the Severely Wounded in Forward Field Hospitals, with Special Reference to Wound Shock. J. D. Stewart and F. Warner. —p. 129.
Evacuation Hospital Experiences with War Wounds and Injuries of Chest: Preliminary Report. P. W. Sanger.—p. 147.
Early Pulmonary Decortication in Treatment of Posttraumatic Empyema. T. H. Burford, E. F. Parker and P. C. Samson.—p. 163.
Traumatic Right Diaphragmatic Hernia: Case with Delayed Herniation of Liver and Gallbladder. C. H. Keene and B. Copleman.—p. 191.
Value of Antitoxin in Prevention and Treatment of Malignant Edema and Gas Gangrene: Review of Observations. I. C. Hall.—p. 197.
Immediate and Late Treatment of Arteriovenous Fistula. E. Holman. —p. 210.
Arterial Injuries in Theater of Operations. J. A. Kirtley Jr.—p. 223.
Chronic Hypertrophic Antrum Gastritis. J. Arendt.—p. 235.
Experiences with Miller-Abbott Tube: Statistical Study of 1,000 Cases. B. C. Smith.—p. 253.
Surgical Significance of Anomalous Cholecystohepatic Duct: Case Reports. H. Neuhof and S. Bloomfield.—p. 260.
Complications of Intraosseous Therapy. L. M. Tocantins and J. F. O'Neill.—p. 266.
Coma During and Following Spinal Anesthesia. S. Belinkoff.—p. 278.

Wound Shock.—Stewart and Warner made clinical studies on 114 severely wounded soldiers admitted as nontransportable to forward field hospital units. These soldiers comprised a selected group in urgent need of resuscitation and surgical treatment. The variability in the clinical picture of wound shock gave the impression that the usual concepts in the definition of traumatic shock are too rigid. The mental and emotional state of the patient, pain, blood pressure, pulse rate, sweating, nausea and vomiting, extent of filling of peripheral veins, skin temperature and plasma volume all were elements subject to considerable variation. Reduction in plasma volume was the rule before replacement therapy. The volume of the whole blood was proportionately more depleted than that of the plasma. Initial deficits of hemoglobin are relatively greater than deficits of plasma protein and are less easily corrected. The validity of this observation is somewhat depreciated by the uncertain effects of plasma infusion and blood transfusions. With respect to administration of plasma and whole blood, it was repeatedly noted that quantitative changes do not result from such therapy. Depleted storehouses for plasma protein and hemoglobin have a high priority during restorative therapy. Hemoconcentration as evidenced by elevation of red cell hematocrit or plasma protein above normal ranges was not encountered in the absence of burns or complicating clostridial myositis. Despite restorative therapy, anemia and hypoproteinemia were the rule during convalescence. Quantitative improvements in blood volume and in concentration of plasma protein and hemoglobin did not occur in response to replacement of plasma and blood. No evidence of overdosage in plasma and whole blood therapy was detected. Dehydration and azotemia were common in early convalescence. In fulminating clostridial myositis

with edema, plasma protein concentration and blood volume fell rapidly. Erratic effects were obtained from sulfonamide therapy. There were 17 deaths among the 100 ground force casualties and 2 deaths among 14 patients with flak wounds.

Archives of Neurology and Psychiatry, Chicago

54:1-74 (July) 1945

Extinction and Precipitation of Cutaneous Sensations. M. B. Bender. —p. 1.
Man's Frontal Lobes: Critical Review. D. O. Hebb.—p. 10.
*Polycythemia as Neurosurgical Problem: Review, with Reports of 2 Cases. J. H. Drew and F. C. Grant.—p. 25.
Hypothalamic Attacks with Thalamic Lesion: I. Physiologic and Psychologic Considerations. G. L. Engel and C. D. Aring.—p. 37.
Id.: II. Anatomic Considerations. C. D. Aring and G. L. Engel.—p. 44.
Thyroid Function of Manic-Depressive Patients Evaluated by Determinations of Serum Iodine. Evelyn B. Man and E. Kahn.—p. 51.

Polycythemia as Neurosurgical Problem.—Drew and Grant direct attention to the frequency of lesions of the central nervous system in polycythemia. Of 62 patients with this condition at the Hospital of the University of Pennsylvania in the last fourteen years, changes of this nature ranging from facial weakness to complete hemiparesis or stupor have been present in 13. In a case in which a chronic subdural hematoma was associated with polycythemia the latter had disappeared after the removal of the hematoma but showed a tendency to return five months after the operation. Literature on the coincident occurrence of expanding intracranial mass lesions and polycythemia revealed 9 cases in which the diencephalic region was not involved. In another patient papilledema of a high degree was associated with polycythemia. The occurrence of a true expanding intracranial mass lesion with polycythemia is rare, but the coincidental occurrence of papilledema and polycythemia is somewhat more common. The cause and effect relationship between polycythemia and disease of the central nervous system is becoming increasingly well documented, but the volume of work done is not yet sufficient to warrant its being recognized as an established fact. Polycythemia with papilledema must be considered as a possible diagnostic and operative problem for the neurosurgeon.

Archives of Physical Medicine, Chicago

26:485-538 (Aug.) 1945

Poliomyelitis: Differential Diagnostic Problems Encountered in Epidemic. A. T. Steegmann and Kathryn Stephenson.—p. 485.
Freezing Treatment of Tumors: Preliminary Communication. F. M. Allen, F. K. Safford Jr. and L. W. Crossman.—p. 499.
Analysis of WAC Emergency Physical Therapy Training Program. F. A. Hellebrandt.—p. 502.
*Challenge of Crutches: II. Crutch Walking: Muscular Demands and Preparation. G. G. Deaver and Mary E. Brown.—p. 515.

Crutch Walking: Muscular Demands and Preparation.—The five muscle groups needed particularly for manipulation of crutches are, in order of importance, (1) flexors of the arms to move the crutches forward, (2) extensors of the forearms to hold the elbows stiff, so that they do not buckle when the weight of the body is placed on the hands and when the body weight is raised from the floor, (3) finger and thumb flexors to permit grasping the crutches, (4) dorsiflexors of the wrist to keep the hands in the correct positions on the hand pieces and (5) shoulder girdle depressors and downward rotators to support the body by means of the crutches when it leaves the floor. Crutches are invaluable aids toward attaining better balance and locomotion. Preparation for crutch walking includes a muscle test to discover the extent of muscular weakness, an exercise program to develop strength in the muscle groups necessary for crutch walking and instruction in how to stand and balance with crutches before taking any steps. For patients who will use crutches, it is good medical practice to prescribe an exercise program for the specific muscle groups used in crutch walking. The exercises are grouped as (1) bed or mat exercises, (2) wheel chair exercises, (3) mat exercises, (4) standing exercises with a bar or any other support, (5) walking exercises with support other than crutches and (6) standing exercises with crutches. Deaver and Brown stress that these exercises are elementary and should be learned by every one who plans to use crutches for an indefinite period. Other crutch balancing exercises should follow these, but they differ according to the crutch gait to be used.

Archives of Surgery, Chicago

51:1-68 (July-Aug.) 1945

*Diagnosis and Treatment of Strictures of Aqueduct of Sylvius (Causing Hydrocephalus). W. E. Dandy.—p. 1.
Chronic Sclerosing Pancreatitis Causing Complete Stenosis of Common Bile Duct. L. W. Peterson and W. H. Cole.—p. 15.
Penicillin: Its Topical Use as Bacteriostatic Agent for Palliative Treatment of Chronic Stasis Ulcers of Lower Extremities. D. L. Lovell. —p. 22.
Transthoracic Operative Approach for Traumatic Lesions of Spleen. J. Burke and T. T. Jacobs.—p. 28.
Early Effects on Dogs of Section of Eighth Cervical Segment of Spinal Cord and Their Bearing on Shock. D. B. Phemister, L. Eichelberger and C. H. Laestar.—p. 32.
Hemodynamic and Biochemical Changes in Dogs Subjected to Section of Spinal Cord: Changes in Dogs Surviving Operation for Protracted Periods. L. Eichelberger, C. H. Laestar and D. B. Phemister.—p. 42.
Fragmentation and Dissolution of Gallstones by Chloroform. J. K. Narat and A. F. Cipolla.—p. 51.
Cleansing of Oil-Covered Skin and Burns. L. Schwartz and H. C. Mason.—p. 55.
*Nitrogen Balance Studies on Surgical Patients Receiving Amino Acids: Observations on Patients with Obstructing Lesions of Esophagus and Stomach Receiving Amino Acids by Parenteral Injections as Exclusive Source of Protein. D. D. Kozoll, W. S. Hoffman and K. A. Meyer. —p. 59.

Hydrocephalus Caused by Strictures of Aqueduct of Sylvius.—According to Dandy, the diagnosis of a stricture at the aqueduct is simple in infants. If the dye test (phenolsulfonphthalein) shows an obstruction in the ventricular system, the obstruction will be either at the aqueduct or at the foramens of Magendie and Luschka. If the inion is low, the obstruction is at the aqueduct. The height of the inion is all important. For children over 1 year old the diagnosis can now usually be made by ventriculography and without operation and frequently without ventriculography. In most of these a partial occlusion of the aqueduct has doubtless existed long before becoming complete. An oversized head, with Macewen's sign (cracked pot sound) and an inion normally placed or at times lower than normal, indicates hydrocephalus without a space-occupying lesion (a tumor) in the posterior cranial fossa. By exclusion, the lesion is a stricture of the iter of Sylvius. When ventriculography is used, the shape of the shadow in the aqueduct of Sylvius—funnel shaped or triangular—will frequently make the diagnosis without an unnecessary cerebellar operation for its disclosure. A third ventriculostomy by the temporal approach is the operation of choice for hydrocephalus due to a stricture of the aqueduct. It is much superior to the anterior approach because (1) external hydrocephalus does not follow, (2) it is not necessary to section a nerve (the optic nerve must be sectioned in the anterior approach) and (3) the scar is under the hair. Cures are attained in most cases when the patient is more than a year old, but in infants a perfect result is obtained in very few cases. One may question the wisdom of operating on this group, though operation is probably worth while when the head is not over 50 or 52 cm. in circumference at the time of operation.

Nitrogen Balance in Patients Receiving Amino Acids.—Kozoll and his associates used parenteral injections of amino acids as the only source of protein during a study of nitrogen balance in 14 cases of obstructing lesions of the esophagus or stomach. Positive nitrogen balance was achieved in 13 of the 14 cases. The quantity of amino acids required by parenteral injection for positive nitrogen balance usually varied between 60 and 90 Gm. per day. At times doses of 120 Gm. were more successful in producing larger positive balances. The serum protein concentration rose during treatment in 4 cases, remained stationary in 2 and fell in 8. The serum albumin concentration rose in 6 cases and declined in 8. The following factors may have been involved in the failure of the serum protein to rise in response to the attainment of positive nitrogen balance: (*a*) Hemodilution, which occurred in most of the cases, masks an increase in serum protein. (*b*) The severity of the protein deficiency in the type of cases studied here may be so severe as to require a much longer period of positive nitrogen balance before the entire protein deficiency can be rectified. (*c*) Gain in nitrogen may be used up in the growth of metastases from carcinoma. (*d*) The albumin synthesizing mechanisms of the body may be interfered with by the presence of carcinoma with hepatic metastases or by a severe protein deficiency of the liver. Therapy with parenteral injections of amino acid should be

accompanied with an effort to meet the requirements of carbohydrate, minerals and vitamins. A minimal daily carbohydrate intake of 300 Gm. should be assured. Therapy with parenteral injections of amino acid is only partly successful when the nitrogen losses are excessively high, since in such circumstances it is impossible to inject the required amounts of amino acids. In clinical practice two adjuvants to enhance the effects of therapy with parenteral injections of amino acid are recommended: (*a*) oral, intragastric or transgastric feedings of protein or amino acids and (*b*) transfusions of whole blood.

Bulletin of Johns Hopkins Hospital, Baltimore

76:221-302 (June) 1945

Effect of Penicillin in Experimental Intestinal Obstruction: Preliminary Report on Closed Loop Studies. W. H. Harper and A. Blain.—p. 221.
*Pulmonary Embolism from Obscure Sources. A. O. Hampton, A. G. Prandoni and J. T. King.—p. 245.
Further Observation on Treatment of Yaws with Penicillin. R. Whitehill and R. Austrian.—p. 274.
Isolation of Thromboplastin from Lung Tissue. W. H. Howell.—p. 295.

Pulmonary Embolism.—Hampton and his associates report 10 cases in which acute chest conditions are thought to have been caused by pulmonary embolism, with or without infarction, or with incomplete infarction, from various venous sources. The patients were at work, had no heart disease and gave no history of known phlebitis. A possible exception may be noted in case 8, in which a thrombosing hemorrhoid was noted at the time of the acute chest episode. None of the patients were admitted with a correct diagnosis. Phlebograms, roentgenograms and electrocardiograms are helpful in diagnosis. Such tests should be employed when a relatively dry area of consolidation is found in the lungs without specific bacteriologic findings, and in which dyspnea or chest pain is an important symptom. The onset may be insidious or it may closely simulate coronary occlusion, pneumonia, angina pectoris or pericardial effusion; in 1 case the roentgenogram resembled that of metastatic carcinoma. Cases of repeated "pleurisy" or "pneumonia," especially if bilateral, should be suspected of being due to pulmonary embolism. Probable sources of emboli have been found in leg veins, pelvic veins, thrombosed hemorrhoidal veins and veins of the prostatic and periprostatic plexus. In certain cases the source may remain unidentified. The authors have used heparin and dicumarol anticoagulant therapy plus rest and elevation of the part affected by thrombosis or phlebitis. They have not observed embolism after institution of such treatment.

Bulletin New York Academy of Medicine, New York

21:393-448 (Aug.) 1945

Air Borne Infection: Rationale and Means of Disinfection of Air. S. Mudd.—p. 393.
Experiences with Rheumatic Fever in the Army. I. S. Wright.—p. 419.

21:451-502 (Sept.) 1945

The Physician and the Problem of Alcoholism. H. W. Haggard.—p. 451.
Recent Advances in Treatment of Malaria. J. A. Shannon and D. P. Earle Jr.—p. 467.
Cardiac Enlargement: Its Recognition and Significance. H. E. Ungerleider.—p. 482.

Canadian Medical Association Journal, Montreal

53:99-198 (Aug.) 1945

Medical Aspects of Normandy Invasion. M. C. Watson.—p. 99.
Mental Hygiene of Later Life. S. R. Laycock.—p. 111.
Some Mental Hygiene Principles. G. H. Stevenson.—p. 115.
Study of Personality Factors Among Venereal Disease Patients. G. O. Watts and R. A. Wilson.—p. 119.
Chronic Right-Sided Pain in Women. H. B. Atlee.—p. 122.
Problem of Damaged Artery in Forward Surgery. W. T. Mustard.—p. 128.
Traumatic Arterial Spasm: Report of Case. W. C. MacKenzie and W. G. Breckenridge.—p. 130.
Pulmonary Embolism. N. Feeney.—p. 132.
Chromoblastomycosis Due to New Species of Fungus: First Canadian Case. L. Berger, M. Beaudry and E. Gaumond.—p. 138.
Internal Derangements of Knee in Military Practice. H. I. J. Kellam.—p. 143.
Severe Anemias of Pregnancy and Postpartum State. J. L. Macarthur and A. D. Campbell.—p. 148.
Procedure in Treatment of Heart Disease. D. M. Baltzan.—p. 150.
Intramedullary Transfusion. F. J. O'Connor Jr.—p. 156.
Stone in Lower (Pelvic) Ureter. E. R. Hall.—p. 157.
Islet Cell Tumors of Pancreas. L. J. Breslin.—p. 160.
Possible Explanation of Conflicting Results in Experiments with Transplanted Tumors. H. C. Connell and L. A. Munro.—p. 162.

Journal of Clin. Endocrinology, Springfield, Ill.

5:203-246 (May-June) 1945

Titers of Gonadotropins in Urine of Aged Eunuchs. J. B. Hamilton, H. R. Catchpole and C. C. Hawke.—p. 203.
Antithyroid Drugs: I. Tetramethylthiourea and Diethylthiourea. R. H. Williams.—p. 210.
Id.: II. Paraxanthine. R. H. Williams, with technical assistance of Jean B. Peters.—p. 217.
Excretion of 17-Ketosteroids by Diabetic. S. Miller and H. L. Mason.—p. 220.
Chronic Hemospermia: Its Origin and Treatment with Estrogen. C. Huggins and D. F. McDonald.—p. 226.

Journal of Clinical Investigation, Boston

24:405-610 (July) 1945. **Partial Index**

Gelatin as Plasma Substitute: Effects of Intravenous Infusion of Gelatin on Cardiac Output and Other Aspects of Circulation of Normal Persons, of Chronically Ill Patients and of Normal Volunteers Subjected to Large Hemorrhage. A. G. Fletcher Jr., J. D. Hardy, C. Riegel and C. E. Koop.—p. 405.
Effect of Methyl Testosterone on Urinary 17-Ketosteroids of Adrenal Origin. E. C. Reifenstein Jr., A. P. Forbes, F. Albright, E. Donaldson and E. Carroll.—p. 416.
Traumatic Shock. H. A. Frank, A. M. Seligman and J. Pine.—p. 435.
*Cold Agglutinins: I. Occurrence of Cold Isohemagglutinins in Various Conditions. M. Finland, O. L. Peterson, H. E. Allen, B. A. Samper and Mildred W. Barnes, with technical assistance of Muriel B. Stone.—p. 451.
Id.: II. Cold Isohemagglutinins in Primary Atypical Pneumonia of Unknown Etiology with Note on Occurrence of Hemolytic Anemia in These Cases. M. Finland, O. L. Peterson, H. E. Allen, B. A. Samper and Mildred W. Barnes.—p. 458.
Id.: III. Observations on Certain Serologic and Physical Features of Cold Agglutinins in Cases of Primary Atypical Pneumonia and of Hemolytic Anemia. M. Finland, O. L. Peterson and Mildred W. Barnes, with technical assistance of Muriel B. Stone.—p. 474.
Studies on Pain: Quantitative Measurements of Two Pain Sensations of Skin, with Reference to Nature of "Hyperalgesia of Peripheral Neuritis." N. Bigelow, I. Harrison, Helen Goodell and H. G. Wolff.—p. 503.
Circulation in Experimental Neurogenic Hypertension. R. J. Bing, C. B. Thomas and E. C. Waples.—p. 513.
Nitrogen Metabolism in Acute Infections. C. M. Grossman, T. S. Sappington, B. A. Burrows, P. H. Lavietes and J. P. Peters.—p. 523.
*Antistreptolysin Titers in Cases of Filariasis with Recurrent Lymphangitis Among Military Personnel. H. M. Rose, J. T. Culbertson and Miriam O. Lipman.—p. 532.
Protective Effect of Vaccination Against Induced Influenza A. T. Francis Jr., J. E. Salk, H. E. Pearson and P. N. Brown.—p. 536.
Maturation and Destruction of Transfused Human Reticulocytes: Evaluation of Reticulocyte Experiments for Measurement of Hemoglobin Metabolism. L. E. Young and J. S. Lawrence.—p. 554.
Calcium Metabolism in Nephrosis: I. Description of Abnormality in Calcium Metabolism in Children with Nephrosis. K. Emerson Jr. and W. W. Beckman.—p. 564.
Studies in Ascorbic Acid, with Especial Reference to White Layer: I. Description of Method and Comparison of Ascorbic Acid Levels in Whole Blood, Plasma, Red Cells and White Layer. Rose Lubschez.—p. 573.
Metabolic Alterations Following Thermal Burns: I. Nitrogen Balance in Experimental Burns. Frieda L. Meyer, S. Joseph, J. W. Hirshfeld and W. E. Abbott.—p. 579.
Use of Sodium p-Aminohippurate for Functional Evaluation of Human Kidney. H. Chasis, J. Redish, W. Goldring, H. A. Ranges and H. W. Smith.—p. 583.
*Treatment of Lobar Pneumonia with Penicillin. W. S. Tillett, J. E. McCormack and Margaret J. Cambier.—p. 589.
Use of Penicillin in Local Treatment of Pneumococcal Empyema. W. S. Tillett, J. E. McCormack and Margaret J. Cambier.—p. 595.

Cold Agglutinins.—Tests for cold agglutinins, using erythrocytes from normal group O donors, were carried out by Finland and his associates on 1,069 subjects, including healthy persons and patients with a variety of conditions, mostly respiratory tract infections. Cold aglutinins in titers of 40 or higher were found in 137, or 68.5 per cent, of 200 characteristic cases of primary atypical pneumonia of unknown etiology, in 5 of 11 cases in which this was the probable diagnosis and in 4 of 7 cases of various kinds of hemolytic anemia. In only 10, or 1.2 per cent, of the remaining 851 cases were cold agglutinins demonstrated in similar titer. In some of these 10 cases and of the few others in which cold agglutinins were demonstrated in lower titers, atypical pneumonia may have played a part. It is suggested that the development of cold agglutinins is related to the causative agent of primary atypical pneumonia and may serve as a diagnostic aid in this disease.

Antistreptolysin Titers in Filariasis.—Rose and his co-workers determined antistreptolysin titers in the blood of 45 soldiers suffering from recurrent lymphangitis associated with filariasis contracted in the South Pacific. The titers were within

normal limits in 39 of the 45 cases. The attacks of lymphangitis in these soldiers appeared to be due to allergic reactions to the parasitic infection; secondary streptococcic infections were of little or no consequence as an etiologic factor.

Penicillin in Lobar Pneumonia.—Tillett and his associates report the results obtained in 110 cases of pneumococcic pneumonia treated with penicillin. There were 7 fatalities in this group, a mortality of 6.3 per cent. Among the patients who recovered, the effectiveness of penicillin was deemed definite in 93 and equivocal in 10 cases. Bacteremia, which occurred in 40 of the patients (36.3 per cent), was successfully eliminated. This result constitutes one of the most striking effects of penicillin therapy in pneumonia. The total amounts of penicillin employed have ranged from 120,000 to 200,000 units in cases of moderate severity and from 150,000 to 400,000 units in serious cases, depending on the evidence of response noted in the first twenty-four to forty-eight hours of treatment. In 3 instances infections caused by sulfonamide fast pneumococci were effectively treated with penicillin. No toxic reactions referable to penicillin have been noted.

Journal of International College of Surgeons, Chicago

8:209-308 (May-June) 1945

Rehabilitation. G. M. Piersol.—p. 209.
Dermoplasty of Healed Burned Dorsum of Hand. J. F. Pick.—p. 217.
Use of Single Massive Doses of Sulfonamide Compounds: Preliminary Report. B. I. Golden and S. W. Meyer.—p. 225.
Cancer of Colon: Survey of Current Trends in Diagnosis and Treatment. M. Behrend.—p. 233.
"Hernias of Pelvic Floor" versus "Prolapse of Uterus or/and Rectum": Problem of Nomenclature, Pathology and Treatment. C. W. Barrett. —p. 242.
Present Status of Continuous Caudal Analgesia in Obstetrics. C. B. Lull.—p. 257.
Survey of Surgical Results in Cancer. W. S. Bainbridge.—p. 261.

Journal of Lab. and Clinical Medicine, St. Louis

30:639-724 (Aug.) 1945

Pathologic Study of Tsutsugamushi Disease (Scrub Typhus) with Notes on Clinicopathologic Correlation. E. B. Settle, H. Pinkerton and A. J. Corbett.—p. 639.
Conglutination Test for Rh Sensitization. A. S. Wiener.—p. 662.
*Detection of Rh Sensitization: Evaluation of Tests for Rh Antibodies. L. K. Diamond and N. M. Abelson.—p. 668.
Studies in Hodgkin's Syndrome: III. Relationship of Tubercle Bacilli to Hodgkin's Syndrome. H. A. Hoster, C. A. Doan and Mariellen Schumacher.—p. 675.
Id.: IV. Therapeutic Use of Radioactive Phosphorus. H. A. Hoster and C. A. Doan.—p. 678.
Relationship Between Diet and Mechanisms for Defense Against Bacterial Infections in Rats. L. J. Berry, Jane Davis and T. D. Spies. —p. 684.
Treatment of Experimentally Induced Type I Pneumococcus Pneumonia in Albino Rats: Comparative Study of Treatment of Pneumonia with Sulfadiazine Alone and in Combination with Sodium Bicarbonate. E. H. Loughlin, R. H. Bennett, J. Wolf and Mary E. Flanagan. —p. 695.
Action of Beta-Dimethylaminoethyl Benzilate Hydrochloride, a Synthetic Antispasmodic. H. M. Lee, C. C. Scott and K. K. Chen.—p. 700.
Significance of Very Low Values for Blood Urea Nitrogen. R. O. Bowman, F. F. Crowell and Laura F. Olson.—p. 706.

Detection of Rh Sensitization.—Employment of a reliable method of detecting Rh antibodies is an important aid in the management of pregnancies of Rh negative women whose husbands are Rh positive. Diamond and Abelson evaluate the following tests for the detection of Rh sensitization: (1) the biologic test, (2) the modified compatibility or tube-agglutination test, (3) the "blocking" test, (4) the capillary tube test and (5) the open slide test. The biologic test possesses very limited clinical usefulness and should be used not to supplant but rather to supplement the in vitro methods. Of the latter the open slide test, when used alone, is by far the simplest and most reliable. It is particularly valuable as a screening test in following obstetric patients and as a confirmatory test for compatibility of blood donor and recipient. For a more refined diagnosis the tube-agglutination and blocking tests used in conjunction with each other possess a high degree of reliability and yield valuable information concerning the stage of immunization to which the sensitized patient has progressed.

Journal of Pediatrics, St. Louis

27:89-204 (Aug.) 1945

Crying of Newly Born Babies: II. Individual Phase. C. A. Aldrich, C. Sung and Catharine Knop.—p. 89.
Case History of Twins Breast Fed on Self-Demand Regimen. Genevieve Trainham, Grace J. Pilafian and Ruth M. Kraft.—p. 97.
Further Records of Self-Demand Schedule in Infant Feeding: Narrative by Mother, with Discussion by Pediatrician. Frances P. Simsarian and P. A. McLendon.—p. 109.
*Diagnosis and Management of Severe Infections in Infants and Children: Review of Experiences Since Introduction of Sulfonamide Therapy: IV. Pneumococcus Meningitis. A. F. Hartmann, Frances M. Love, Dorothy Wolff and Barbara S. Kendall.—p. 115.

Pneumococcic Meningitis in Children.—Hartmann and his associates review the clinical, laboratory and postmortem studies of all cases of pneumococcic meningitis admitted to the St. Louis Children's Hospital from the time the first sulfonamide drug was available for treatment (December 1936) to Nov. 1, 1944. The following conclusions have been reached: Apparently any type of pneumococcus may cause meningitis. The pathway by which the pneumococcus may gain entrance to the meninges and spinal fluid varies and should whenever possible be established because of its possible surgical implications. The incidence of "surgical" mastoiditis as a port of entry is much greater than in meningococcic but also apparently much smaller than in hemolytic streptococcus infections. When the temporal bone is involved there seems to be a characteristic pathologic picture which includes (1) a high incidence of purulent labyrinthitis, (2) the formation of "empyemic membrane," (3) peculiar organization of bubbly exudate which leads to pseudogland formation and (4) a high incidence of bilateral involvement. A diagnosis of pneumococcic meningitis can be made with certainty only by lumbar puncture and proper examination of the spinal fluid. The great value of early diagnosis far outweighs any theoretical danger imposed by lumbar puncture. Treatment should be started as early as possible with penicillin and sulfonamide in high dosage. Mortality seems more related to delayed diagnosis and institution of intensive therapy than to any other single factor. Sequelae such as hydrocephalus, epilepsy and mental retardation may be expected, especially when the infection occurs during infancy and is not eradicated immediately.

Journal of Thoracic Surgery, St. Louis

14:1-338 (Aug.). 1945

*Studies in Oleothorax: I. Bacteriostatic Action of Oils on Tubercle Bacillus. P. D. Crimm and V. F. Martos.—p. 265.
Id.: Use of Oils in Disinfectant Oleothorax and in Reexpansion of Lung in Tuberculous Empyema: Preliminary Report. P. D. Crimm and J. J. Westra.—p. 270.
Benign Tumors of Esophagus: Report of 3 Cases. R. Adams and W. B. Hoover.—p. 279.
Relaxing Thoracoplasty: Preliminary Report. O. C. Brantigan, T. B. Aycock, R. Hoffman and H. J. Welch.—p. 287.
*Importance of Ascorbic Acid (Vitamin C) in Chest Surgery. E. deJ. Zerbini.—p. 309.
Tumor of Lung Due to Cryptococcus Histolyticus (Blastomycosis). B. A. Dormer, J. Friedlander, F. J. Wiles and F. W. Simson.—p. 322.
Occlusion of Superior Vena Cava Due to Syphilitic Mediastinitis: Collateral Circulation After Nineteen Years. F. D. Zeman.—p. 330.

Action of Oils on Tubercle Bacilli.—Crimm and Martos report experiments in which Long's synthetic medium, Corper's egg medium and glycerol-peptone agar were used for culturing various strains of tubercle bacilli. The bacteriostatic action of peanut oil, cod liver oil and gomenol for the H_{37} strain and the bovine and avian types of Mycobacterium tuberculosis was determined. It was found that peanut oil is inhibitory for H_{37} and other virulent human strains in a concentration of 5 per cent and for the bovine type in a concentration of 2 per cent. For the avian type the limit of tolerance was not determined, but it is greater than a concentration of 10 per cent. Cod liver oil is bacteriostatic for the human, bovine and avian types of Myco. tuberculosis in 1 per cent concentration. Gomenol is bacteriostatic for both human and avian types of Myco. tuberlosis in 5 per cent concentrations. Complete inhibition of the bovine type occurred in 1 per cent concentration. Prolonged incubation of the H_{37} strain and a virulent human strain isolated in this laboratory with peanut oil, cod liver oil and gomenol does not alter the virulence or the acid fastness of the organisms, although the colony morphology is altered. This observation

that the virulence of the tubercle bacillus is not altered by the oils differs from the results obtained by other investigators. The oils available today are more highly purified than those of a decade ago and have been freed from the substances responsible for the bacteriolytic action. The authors concur that these oils have an inhibitory action on the growth of the tubercle bacillus. However, the subsequent growth of the organisms on a rich medium and their normal virulence when injected into guinea pigs indicate that the oils adherent to the tubercle bacilli inhibit their growth by a physical rather than by a chemical action.

Vitamin C in Chest Surgery.—Zerbini studied the amount of vitamin C in the blood and the tissues of patients with chronic surgical diseases of the lung and esophagus. Twenty-two patients were studied before and after operation. The average ascorbic acid content found just after the admission of the patients was 0.15 mg. per hundred cubic centimeters. In 1 patient with a normal plasma ascorbic acid level before operation this level declined to practically zero after operation. In other cases an attempt was made to raise the plasma ascorbic acid level before and after operation so as to aid in the scar formation. The patients were given 1,000 mg. of ascorbic acid in a single period of twenty-four hours. This was divided into small doses of 100 mg. at a time. In a typical case it was seen that in twenty-four days of postoperative observation the level in the plasma was progressively increased to 0.85 mg. per hundred cubic centimeters, which is almost the normal level. The increase of ascorbic acid in the plasma was slow, although large doses were employed. The determination of the ascorbic acid in the white cells and platelets gave different results in different patients. When the general condition was good and the patient was a good risk, the white cell and platelet level did not change with the operation, even when the plasma level was zero. In 1 patient with esophageal cancer and artificial alimentation through a gastrostomy, the plasma and the white cells and platelets were both found deprived of ascorbic acid, a condition which represents a prescorbutic state. The amount of ascorbic acid in muscle and lung tissue removed during the operation seems to be below the values considered normal. It is concluded that every patient with a chronic surgical chest condition should be given high doses of ascorbic acid before and especially after important surgical procedures.

Kansas Medical Society Journal, Topeka

46:253-288 (Aug.) 1945

Sciatica Secondary to Retropulsed Intervertebral Disks. C. Rombold.—p. 253
Manic Depressive Psychosis, Depressed Phase: Case Report. T. L. Foster.—p. 257.
Medical Board and Its Responsibility to the Public. J. F. Hassig.—p. 259.

46:289-324 (Sept.) 1945

Epigastric Hernia: Factor in Upper Abdominal Diagnosis. G. R. Peters and C. C. Nesselrode.—p. 289.
Preventive Psychiatry. F. A. Carmichael.—p. 292.

Kentucky Medical Journal, Bowling Green

43:197-218 (Aug.) 1945

Observations and Experiences of Forty Years in General Practice. W. L. Tyler.—p. 199.
Ophthalmic Geriatrics. M. J. Stern.—p. 202.
Coronary Heart Disease. W. C. Gettelfinger.—p. 204.
Coronary Heart Disease. C. Morse.—p. 206.

43:219-240 (Sept.) 1945

Sulfadiazine Death Due to Anuria. C. Baron.—p. 227.
Radiation Hazards in Medical Practice. D. B. Harding.—p. 228.
Tuberculosis. H. L. Houston.—p. 232.

Missouri State Medical Assn. Journal, St. Louis

42:461-532 (Aug.) 1945

Diseases of Bile Duct. J. M. McCaughan.—p. 477.
Carcinoma of Prostate Gland and Benefits of Diethylstilbestrol or Orchiectomy. C. A. Wattenberg.—p. 482.

42:533-600 (Sept.) 1945

Bronchoscopy: Its Role in Diagnosis and Treatment of Pulmonary Tuberculosis. F. G. Bell and B. Schaff.—p. 549.
Enrichment of Bread. W. H. Olmsted.—p. 563.

New England Journal of Medicine, Boston

233:229-264 (Aug. 23) 1945

*Ligation of Inferior Vena Cava for Prevention of Pulmonary Embolism: Report of 2 Cases. E. A. Gaston and H. Folsom.—p. 229.
*Hazard of Transfusion Malaria After the War. A. D. Rubenstein, M. H. Shulman and D. Merrill.—p. 234.
Gastroscopic Studies in Naval Personnel with Chronic Seasickness. E. B. Benedict and R. S. Schwab.—p. 237.
Practical Aspects of Oxalate Metabolism. H. Jeghers and Rosemary Murphy.—p. 238.
Tuberculosis of Mediastinal Lymph Nodes.—p. 255.
Jejunal Obstruction Due to Congenital Diaphragm: Meconium Peritonitis.—p. 257.

233:265-286 (Aug. 30) 1945

Relation Between Vagal Activity and Auricular Fibrillation in Various Clinical Conditions. M. D. Altschule.—p. 265.
Fibrin Foam as Hemostatic Agent in Suprapubic Prostatectomy. W. C. Quinby and E. K. Landsteiner.—p. 267.
Nylon Backing for Dermatome Grafts. R. W. Green, S. M. Levenson and C. C. Lund.—p. 268.
Acute Hallucinosis as Complication of Addiction to Amphetamine Sulfate: Report of Case. J. Norman and J. T. Shea.—p. 270.
Neurology. H. H. Merritt.—p. 272.
Congenital Mediastinal Cyst Arising from Esophagus.—p. 278.
Tuberculosis of Vertebra, with Extension to Dura.—p. 281.

Ligation of Inferior Vena Cava for Prevention of Pulmonary Embolism.—Gaston and Folsom assert that necropsies disclose that in a high percentage of cases of pulmonary embolism the emboli originated in veins that were direct or indirect tributaries of the inferior vena cava. Ligation of the inferior vena cava below the level of the renal veins, although an operation of some magnitude, is compatible with recovery in seriously ill patients. Caval interruption is effective in preventing the embolic sequelae of thrombosis of the pelvic veins, whether this thrombosis is primary in the pelvic veins or secondary to a propagating thrombophlebitis originating in the veins of the legs. Even following ligation of the common femoral veins an adequate collateral circulation develops around the obstructed cava, and peripheral edema eventually disappears. The authors report 2 cases in which caval interruption effectively prevented further pulmonary infarction. The operation was followed by complete recovery in each case. Most helpful in sustaining the patient through the critical postoperative period were swathing the feet, legs and thighs tightly in elastic bandages to help prevent shock due to the rapid withdrawal of edema fluid from the circulation, the early use of oxygen and adequate intravenous infusions of plasma and whole blood.

Hazards of Transfusion Malaria After War.—Rubenstein and his associates state that, of the 12 cases of post-transfusion malaria reported in Massachusetts since 1929, all but 3 were quartan. The predominance of quartan infections is evidence that in a nonendemic area the problem of post-transfusion malaria is intimately linked with the ability of Plasmodium malariae to remain latent for long periods. Because several weeks may elapse between the transfusion and the onset of malaria in the recipient, the causal relations of these events may not be recognized. Post-transfusion malaria when recognized and promptly treated is not usually fatal.

New Orleans Medical and Surgical Journal

98:1-48 (July) 1945

Ureteral Calculi: Unusual Case with Five Stones in One Ureter. H. T. Beacham and W. D. Beacham.—p. 1.
Case of Perirenal Abscess. E. A. Ficklen.—p. 4.
Simple Treatment for Sebaceous Cyst. J. A. Danna.—p. 5.
Sinus Disease in Childhood. G. J. Taquino.—p. 8.
Normal and Abnormal Physiologic Effects of Tropical Climate. G. E. Burch.—p. 14.

98:49-90 (Aug.) 1945

Some Comments on Early Literature of Geriatrics in America. W. D. Postell.—p. 49.
What Is Dyspnea? S. Jacobs.—p. 51.
Thiouracil in Thyrotoxicosis. G. McHardy and D. C. Browne.—p. 55.
Plasmochin Intoxication: Report of Case. S. B. Nadler and E. J. Crawford.—p. 61.
Sulfamerazine in Treatment of Genitourinary Infections: Analysis of 151 Consecutive Cases. W. E. Kittredge and A. J. Butt.—p. 63.
Postoperative Evisceration: Part I. Comparative Study. V. D'Ingianni.—p. 65
Clinical Suggestions for Endocrine Diagnosis and Treatment. J. H. Hutton.—p. 72.

Rhode Island Medical Journal, Providence

28:482-552 (July) 1945

Advantages and Disadvantages of Barbiturates in Obstetrics. C. D. Irving.—p. 493.
Smoke and Health. C. A. Mills.—p. 496.
Coordinating Industrial Medicine and Industrial Hygiene in Modern Industrial Practice. C. O. Sappington.—p. 501.

28:553-624 (Aug.) 1945

Surgery of Veins of Legs: Varicosity and Some Problems in Thrombosis. J. Homans.—p. 565.
Internal Derangements of Knee Joint: X-ray Diagnosis. J. Gershon-Cohen.—p. 570.
Discussion of Causes of Cancer. S. P. Reimann.—p. 573.
Independence Day—1945: Public Statement from Dr. J. F. Kenney to Governor McGrath.—p. 587.
Paying for Medical Care Under Rhode Island Public Assistance Act: Report of Experiment in Method of Payment for Medical Care in Towns of East Providence, Bristol and Warren. Margaret D. Ward. —p. 601.

Surgery, Gynecology and Obstetrics, Chicago

81:225-336 (Sept.) 1945

Fallacy of Surgical Gut (Catgut) Tubing Fluid as Tissue Irritant. J. O. Bower.—p. 225.
Theca Cell Tumors of Ovary: Clinical and Pathologic Study of 23 Cases (Including 13 New Cases), with Review. E. A. Banner and M. B. Dockerty.—p. 234.
*Rationale of Calcium, Phosphorus and Vitamin D Therapy in Clinical Hyperthyroidism. I. D. Puppel, H. T. Gross, E. K. McCormick and E. Herdle.—p. 243.
Posterior Approach for Arthrodesis and Other Operations on Shoulder. P. H. Harmon.—p. 266.
*Massive Extrusions of Lumbar Intervertebral Disk. A. VerBrugghen. —p. 269.
Lung Abscess: Analysis of 244 Cases. A. R. Valle.—p. 278.
Volvulus of Sigmoid Colon: Report of 25 Cases. W. D. Griffin, G. R. Bartron and K. A. Meyer.—p. 287.
Significance of Tumor Cells in Serous Effusions. A. H. Honigman. —p. 295.
Experimental Studies in Peripheral Nerve Surgery: IV. Effect of Infection on Regeneration and Functional Recovery. L. Davis, G. Perret and F. Hiller.—p. 302.
Infected Pilonidal Sinus. L. S. Davies and K. W. Starr.—p. 309.
Lacerations of Perineum and Their Repair: Study Based on 2,328 Personal Cases. L. E. Phaneuf.—p. 320.
Fascia of Dorsum of Hand. B. J. Anson, R. R. Wright, F. L. Ashley and J. Dykes.—p. 327.
Method for Surgical Obstruction of Fallopian Tube: Animal Experimentation. E. G. Krieg.—p. 331.

Therapy in Clinical Hyperthyroidism.—Puppel and his associates found that calcium, phosphorus and vitamin D medication is of value in the treatment of clinical hyperthyroidism. Especial attention must be given to calcium, which in the usual diet is barely sufficient for a normal person. Hyperthyroid patients require about 2 Gm. of calcium daily to maintain them in calcium retention. This is at least twice the optimum calcium requirement for normal adults. Three Gm. daily is a more adequate amount to restore the depleted calcium. Phosphorus requirements are similarly increased. Eleven hyperthyroid patients maintained on a low intake of calcium, averaging 474 mg. per day over a period of ninety days, showed an average loss of 459 milligrams per day. When 5 of these patients were further investigated on an adequate intake of calcium averaging 2,410 mg. per day over a period of eighty-one days, remarkable retention of calcium occurred which resulted in a positive balance of 362 mg. per day. The state of the phosphorus balance showed similar spectacular and beneficial changes. Retention occurred whether the calcium was fed or administered parenterally. The authors supplemented high calcium and high phosphorus diets with four of the most common types of calcium salt. They were all effective in maintaining retention of calcium and phosphorus. However, 3 of the 11 patients received added amounts of phosphorus and vitamin D besides the added amounts of calcium in the form of dicalcium phosphate with viosterol. The latter seemed to promote increased retention of calcium of 200 to 1,000 per cent over that of patients receiving only added calcium or calcium and vitamin D in palatable doses. Hyperthyroidism in the presence of insufficient calcium and phosphorus intake often produced osteoporosis. Severe cases of osteoporosis may lead to osteomalacia and spontaneous fractures. Gross deformities and dwarfism may result. These complications of hyperthyroidism can be treated best by feeding of adequate calcium, phosphorus and vitamin D. Muscular, joint and bone pains can frequently be best controlled by calcium, phosphorus and vitamin D therapy. Thyroid crisis still occurs in spite of adequate iodinization and often in a patient who is refractory to iodine. The authors feel that preoperative calcium, phosphorus and vitamin D are important in iodine refractory and the precrisis states, as well as in the prevention of thyroid crisis. Calcium, phosphorus and vitamin D should especially be administered to hyperthyroid patients who do not come to surgery early.

Massive Extrusions of Lumbar Intervertebral Disks. —VerBrugghen thinks that insufficient stress has been placed on the serious complications which may occur when the ruptured intervertebral disk is inadequately treated. The extrusion of a large part of a disk may so compress the cauda equina as to cause weakness of one leg with disturbance of urinary function or even a transverse cauda equina lesion with paraplegia and incontinence of the bladder and rectum. Most of the patients with the cauda equina lesions seen by the author languished for days, weeks or months without a correct diagnosis being made. In all of the cases the lesion was at the lower lumbar vertebrae. The history is characteristically cog wheel in type, and the signs are those of acute compression of the cauda equina. The symptom complex varied from slight weakness of the legs below the knee with saddle hypesthesia to severe sphincter disturbances. Of 9 patients seen, 8 were operated on and 1 died before anything could be done. They represent the serious complication seen in 300 consecutive cases of typical herniated nucleus pulposus. All but 1 of the 9 cases presented a history of backache for years, and all but 2 a history of both backache and sciatica for years. A history of trauma was obtained in 3 cases. The bladder mechanism was not seriously involved in only 1 case. Weakness and hypesthesia were observed in varying degrees. The Lasègue sign was positive in all the cases in which it was tested. The deep reflexes in the ankle were affected in all the cases. The spine was tender on deep pressure in 6 of 8 cases. The intervertebral space was narrowed at the site of the herniation of the involved disk in 5 of 9 cases. Early diagnosis and operation are essential, but recovery may be slow and incomplete, even if the diagnosis is made early.

United States Naval Med. Bulletin, Washington, D. C.

45:207-406 (Aug.) 1945

*Cord Bladder: Restoration of Function by Transurethral Operation. G. J. Thompson.—p. 207.
*Acute Infectious Mononucleosis Simulating Acute Abdominal Emergency: Report of 4 Cases Occurring Aboard Ship. G. M. Perisho and D. V. Sargent.—p. 215.
Inguinal Herniorrhaphy: Follow-Up Report. J. J. Timmes.—p. 221.
*Filariasis: Histopathologic Study. P. Michael.—p. 225.
Evaluation of Measures for Use Against Common Fungous Infections of Skin: Screening Tests by Means of Paired Comparisons on Human Subjects. M. B. Sulzberger, H. C. Shaw and A. Kanof.—p. 237.
Clostridium Perfringens in Battle Injuries: Rapid Identification by Simple Modification of Altemeier's Method. J. C. Norris and J. A. Fisher.—p. 249.
Rheumatic Fever at Technical Training School. S. M. Wheeler and H. S. Ingraham.—p. 253.
Penicillin in Persistent Diphtheria: Treatment of Patients with Repeated Positive Throat Cultures. J. W. Skinner.—p. 264.
Diphtheritic Paralysis. E. G. Givhan Jr. and E. J. Mahon.—p. 267.
Familial Portal Cirrhosis in Young Adults. E. M. Jameson and L. A. Savarese.—p. 270.
Standardized Clinical Photography. G. S. Harris.—p. 277.
Clinical Masquerades of Malaria: Observations in South Pacific Combat Areas. A. S. Hyman.—p. 287.
Neuropsychiatric Manifestations in Malaria. D. I. Arbuse.—p. 304.
Psychiatric Preparations for Combat in Marine Division. P. Solomon. —p. 310.
Treatment of Tropical Skin Diseases in South Pacific: An Outline. R. R. M. McLaughlin.—p. 314.

Transurethral Operation for Cord Bladder.—Thompson says that paralysis is so extensive in the vast majority of cases of cord injury that urination is impossible and remains so for many months. The distended bladder must be emptied. In the early phase of the paralysis the bladder of a few of these patients can be emptied by manual pressure applied in the suprapubic region. As time goes on these few usually find that the bladder cannot be completely emptied. The majority of paralyzed patients require drainage of the bladder through a catheter placed suprapubically through a stab wound, through a boutonnière incision in the perineal portion of the urethra or

through the penis. No matter where placed, the catheter must be irrigated regularly and changed at regular intervals. After a lapse of weeks or months, when the catheter is removed, some of these patients develop what is loosely called an automatic bladder. They void at irregular intervals but are usually incontinent to some degree; hence a urinal must be worn. If the indwelling catheter can be dispensed with, the patient's condition improves rapidly. Some patients will have spontaneous recovery of function. Patients who are unable to urinate after maximum nerve recovery has taken place can regain voluntary control of bladder function as the result of a properly performed transurethral resection of the vesical neck. It is important to remove a substantial amount of tissue. The resection of a few pieces from the posterior half of the vesical neck usually accomplishes nothing; tissue must be excised from the entire circumference of the outlet. Only in this way can the resistance of the retention mechanism be diminished sufficiently so that an increase of pressure within the abdomen, accomplished by straining, will squeeze the bladder dry. The most gratifying feature is that between urinations the patient has perfect control. Depending on fluid intake, four or more hours may elapse between urinations. If fluids are restricted in the evening, the patient can sleep all night. The author presents the histories of 5 patients. Voluntary bladder function was restored in all by transurethral resection of the hypertrophied internal sphincter. Prior to operation these patients had suffered from urinary retention and dribbling overflow incontinence. Since operation they have been able to void at will; they empty the bladder completely and have good control.

Acute Infectious Mononucleosis Simulating Acute Abdominal Emergency.—During the past six months aboard a heavy cruiser having an average complement of around 1,650 officers and men, Perisho and Sargent observed cases of acute infectious mononucleosis. In 4 of these, most or all of the signs and symptoms were confined to the abdomen and were of such character and severity as to simulate an acute surgical emergency. Two patients presented classic pictures of acute appendicitis, 1 of an acute diverticulitis (Meckel's) and 1 of a perforated peptic ulcer or ruptured spleen. The authors think that if the previous occurrence of typical cases of acute mononucleosis accompanied by sore throat and cervical adenitis had not made them "mononucleosis minded" these patients might have been subjected to unnecessary operation. It is probable that medical officers are too little aware of the fact that mononucleosis involving the mesenteric or retroperitoneal lymph nodes and spleen may simulate other abdominal diseases. The differential diagnosis depends principally on the differential leukocyte count.

Filariasis: Histopathologic Study.—Michael shows that histopathologic changes in the lymphangitis stage of filariasis may roughly be classified in two main divisions: (1) those presumably due to a generalized sensitivity caused by a distant worm focus with tissue changes occurring on an allergic basis and (2) those due to the presence of the worm in situ, resulting in local changes from absorption of worm products and, to a lesser degree, lymphatic obstruction. The author describes "fugitive swellings," skin tests with Dirofilaria immitis antigen, eosinophilic cell response and lesions in which worm segments, living worms, degenerated and calcified forms of microfilariae are found. The most important single diagnostic procedure, apart from the clinical history and physical examination, is the examination of a lymph node or lymphatic tissues for evidence of filariasis. All other laboratory procedures so far are inadequate, although skin testing with Dirofilaria immitis antigen is an aid. The problem, as judged from microscopic studies, is one of a foreign body engulfment and absorption of the parasite, resulting in the final production of scar tissue. Host resistance, augmented by action of the reticuloendothelial barrier, would seem to establish this lesion as being self limited in nature and ordinarily not productive of such sequelae as elephantiasis, lymph stasis and secondary infection. Not only will this infection not result in permanent damage to the vast majority of these patients but it will probably not become a public health problem in the future in the continental United States. The low percentage of microfilariae found in the peripheral blood and the absence of many of the optimal requirements for spread, such as humidity and heavy rainfall, together with the low incidence of mosquitoes capable of serving as intermediate hosts, will serve to halt possible spread to the civilian population in the United States.

45:407-610 (Sept.) 1945

Schistosomiasis in Naval Personnel: Report of 16 Cases. A. R. Hunt. —p. 407.
Modification of Faust-Meleney Technic: Feces Examination for Schistosoma Japonicum. J. K. McCorkle.—p. 420.
Observations on Tsutsugamushi Disease. W. M. Fischbach and D. E. Howell.—p. 423.
*Sternal Puncture in Diagnosis of Malaria. B. M. Jacobson and H. K. Russell.—p. 429.
Eye Injuries and Diseases Encountered During Iwo Jima Campaign. K. B. Benkwith.—p. 433.
Anesthetic Agents in Treatment of Battle Casualties. H. B. Neel. —p. 442.
Pentothal Sodium in Orthopedic Surgery. H. C. Fett, F. A. Adams and Sarah E. Adams.—p. 449.
*Treatment of Bedsores by Total Excision with Plastic Closure. J. C. White, H. W. Hudson Jr. and H. E. Kennard.—p. 454.
Appendicitis, with Emphasis on Use of Penicillin. G. Crile Jr., and J. R. Fulton.—p. 464.
Primary Healing Following Excision of a Cyst, Teratoma. C. N. Cooper.—p. 474.
Penicillin in Treatment of Vincent's Angina. H. E. Twining, H. W. Szylejko and R. A. Kern.—p. 479.
Measurement of Relative Exophthalmos by Roentgenography. B. Friedman.—p. 482.
Derangements of Knee Joint: Diagnostic Aid Obtained by Roentgenologic Examination of Soft Structures and of Menisci without Injection of Contrast Media. J. Gershon-Cohen.—p. 488.
Characteristics of Disciplinary Group in a Naval Hospital. J. P. Brady and H. M. Hildreth.—p. 500.
Neurologic Complications Following Dengue. A. Kaplan and A. Lindgren.—p. 506.
Central Macular Chorioretinitis in Naval Personnel. W. E. Borley, A. W. McAlester and R. A. Lower.—p. 511.
Report of Diphtheria Epidemic. R. L. Dennis.—p. 517.
Treatment of Gonorrhea with Penicillin in Naval Dispensary. J. F. Ricchiuti and W. B. Brett.—p. 520.
Treatment of Dermatologic Conditions Aboard a Destroyer. A. D. Dennison Jr.—p. 524.

Sternal Puncture in Malaria.—Jacobson and Russell studied marrow smears. These smears were dried in the incubator at 37 C. for thirty minutes, were stained with Wright's stain for one minute, then immersed in Giemsa stain for thirty minutes and differentiated in distilled water, with observation of the color at frequent intervals under the microscope. The smears were dried and examined under the oil immersion objective. Each preparation was examined at least twenty minutes before being pronounced negative. The authors performed sternal puncture on 90 patients. They divide these patients into four groups. In the 13 patients of group 1 several blood smears, some obtained after the administration of epinephrine, had been negative prior to the bone marrow examination. Ten of these 13 patients showed the presence of vivax parasites in the bone marrow, an 1 the presence of falciparum parasites. In 2 of the 13 cases of this group the bone marrow was recorded as negative. The 49 patients of group 2 exhibited atypical symptoms or signs. In all blood smears were negative, but 10 of these 49 patients showed vivax parasites in the bone marrow. In the 15 patients of group 3 who had the clinical symptoms of malaria, ring forms had been observed in thick blood smears but the diagnosis of the species remained in doubt. Bone marrow examination permitted the identification of the species in all but 1 of these 15 cases. Group 4 comprised 13 patients, each of whom had had from one to fifteen attacks of malaria. At the time of examination none of these patients had paroxysms of malaria. In all of them thick blood smears were negative. In 4 of these 13 cases the bone marrow revealed the presence of Plasmodium vivax. The remaining bone marrow examinations yielded negative results. The authors stress that in properly selected cases the bone marrow examination increases the chances of an accurate diagnosis of malaria.

Excision with Plastic Closures in Bedsores.—White and his associates show that sacral bedsores can be resected and closed by primary suture. This method is applicable to indolent ulcers of the type commonly seen after severe injuries to the spinal cord. In these cases adequate preliminary treatment must be given to correct anemia, reduced serum protein with edema secondary to malnutrition, and avitaminosis. Systemic and local chemotherapy should be used to clear up sepsis in the tissues surrounding the decubitus, in the bladder or in any

other focus. If the area does not fill in with granulation tissue and a satisfactory growth of epithelium fails to cover the surface, excision of the entire lesion and plastic closure is preferable to pinpoint or Thiersch grafting. This can be carried out without fear of serious sepsis if penicillin is injected intramuscularly during the period of healing. Five case histories are reviewed. In 2 of these there was primary healing; in the other 3 there was some separation of the edges of the flaps. Two of the latter required secondary plastic procedures of lesser extent. Sepsis was no problem. In place of an adherent avascular scar with a thin covering of epithelium, which generally results from pin point or Thiersch grafting, these patients all obtained full thickness skin with a healthy layer of subcutaneous fatty tissue as a covering of the pressure area over the sacrum. However, even after a pressure sore has been excised and covered with full thickness skin and subcutaneous tissue, it can break down again under the unfavorable circumstances which may arise in patients with transverse lesions of the spinal cord. In the after-care of these patients the same precautions must therefore be observed as in any case of anesthesia of the weight bearing areas.

Virginia Medical Monthly, Richmond

72:317-362 (Aug.) 1945

General Uses of Penicillin in Otolaryngology. F. D. Woodward.—p. 318.
Some Long Shot Cases of Cancer That Recovered. J. S. Horsley. —p. 321.
Partial Duodenopancreatectomy: Its Use in Treatment of Pancreatic Malignancy: Case Report. H. C. Lee.—p. 333.
Planned Parenthood. C. J. Andrews.—p. 341.
Indications for Terminating Pneumothorax Treatments. Elizabeth C. Cole.—p. 344.
Finding Early Tuberculosis. N. Mercer.—p. 348.

72:363-402 (Sept.) 1945

Recent Advances in Drug Therapy. A. Smith.—p. 367.
Nonsurgical Therapy of Epilepsy. H. P. Newbill and R. Leigh Jr. —p. 373.
Dicumarol Therapy and Prothrombin Time. C. P. Segard.—p. 378.
Penicillin in Treatment of Pyogenic Infections of Skin: Report of 50 Cases. R. C. Manson.—p. 381.
Torsion of Omentum: Two Case Reports. J. G. Ramsay.—p. 388.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

53:255-300 (Aug.) 1945

Cancer of Cervix Uteri: Some Fundamental Considerations. K. H. Martzloff.—p. 255.
*Polyps of Cervix and Uterus. K. Newgard and D. G. Morton.—p. 268.
Use of an Ergovine-like Oxytocic (Methergine): Preliminary Report. J. C. Brougher.—p. 276.
Use of Local Anesthesia in Operations. H. E. Peters Jr.—p. 278.
Gastric Adenomas: Pathologic Study. J. H. Rieniets and A. C. Broders. —p. 282.

Polyps of Cervix and Uterus.—Newgard and Morton report 228 cases of polyps of the cervix studied at the University of California Hospital in the decade between 1930 and 1940. Simple excision and/or cauterization was done in 96 cases, simple excision plus radium treatment in 77, cervical resection in 36 and total or vaginal hysterectomy in 18; the remaining 1 was only observed. Although all of these patients were treated in the hospital, not all patients with cervical mucous polyps require hospitalization. The main feature is to rule out cancer. A simple asymptomatic cervical polyp may be removed in an office, and its base cauterized, if one makes certain that no serious associated pathologic condition exists. If bleeding or even spotting is complained of the polyp cannot be considered as the definite cause, and a more thorough investigation usually with hospitalization is advisable. An uncomplicated cervical mucous polyp rarely gives symptoms. While many endometrial polyps are asymptomatic, discharge and bleeding of a spotty, intermittent type are more frequent here. Both types of polyps have to be strictly separated from other polypoid masses of the cervix or uterine cavity. Their structures resemble those of the cervical and uterine mucosa respectively. Secondary changes are frequent, the most important being the nonmalignant epidermization in cervical polyps and cancer in endometrial polyps. The term polyp is being used too loosely, which probably explains many of the so-called malignant cervical polyps reported in the past. While polypoid carcinoma of the cervix occurs and, very rarely, a true polyp may become malignant, these changes are usually evident on clinical examination and thus rarely cause confusion.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

20:49-96 (June) 1945. **Partial Index**

Assessment of Health in Childhood. N. B. Capon.—p. 52.
Effect of National Bread, of Iron Medicated Bread and of Iron Cooking Utensils on Hemoglobin Level of Children in Wartime Day Nurseries. Helen M. M. Mackay, R. H. Dobbs and K. Bingham.—p. 56.
Fragility of Red Cell to Hypotonic Saline in Infancy and Childhood. L. Findlay.—p. 64.
Toxic Thrombocytopenic Purpura Following Local Sulfathiazole Therapy. G. M. Donaldson and H. Scarborough.—p. 69.
*Diagnosis of Chronic Intussusception in Children, with Account of 3 Cases. J. M. Garvie and F. H. Kemp.—p. 73.
Cardiac Complications in Scarlet Fever. C. Neubauer.—p. 81.

Chronic Intussusception in Children.—Garvie and Kemp report 3 cases, in 2 of which the condition was not suspected for a long time owing to the apparent absence of a palpable abdominal tumor, while in the third case the diagnosis was not made because the tumor did not persist. In the first case the intussusception first occurred at 2½ years of age. Spontaneous reduction must have ensued, for there were no symptoms for about two years. Three years ago the patient, a boy now 7 years of age, had an illness which was in the nature of a toxic reaction of the Henoch-Schönlein type, and there can be little doubt that the intussusception existed at that time, for thereafter he had attacks of pain about once a month. Despite the long standing illness, the boy's condition remained good and there was no wasting. The true diagnosis was never suspected because no abdominal tumor was palpated even during the paroxysms of pain. The x-ray examination gave conclusive evidence of intussusception. The common features in the histories of the 3 cases were repeated attacks characterized by the sudden onset of central abdominal pain. Any child who gives a suggestive history should be carefully examined, for owing to the difficulty in securing proper relaxation the tumor can be easily missed. X-ray studies should be made whether a tumor is palpable or not.

Australian J. Exper. Biol. and M. Science, Adelaide

23:81-164 (June) 1945. **Partial Index**

Corrosion of Concrete: 1. Isolation of Species of Bacterium Associated with Corrosion of Concrete Exposed to Atmospheres Containing Hydrogen Sulfide. C. D. Parker.—p. 81.
Presence of Large Amounts of Uric Acid in Integument of Mammals. A. Bolliger and Margaret H. Hardy.—p. 99.
Diluted Blood Perfusion of Pneumonic Lung. E. R. Trethewie.—p. 103.
Spontaneous Infection of Laboratory Mice with Psittacosis-like Organism. P. DeBurgh and A. V. Jackson and S. E. Williams.—p. 107.
Relation Between Urinary Volume and Urinary Excretion of Thiamine and Riboflavin of a Man Fed on a Constant Diet. Catherine E. Francis and E. C. Slater.—p. 119.
Efficiency of Human Prothrombin System. P. Fantl.—p. 123.
Staphylococcal Fibrinolysin. R. Christie, J. J. Graydon and E. F. Woods.—p. 127.
Thiol—Vitamin K Mechanism in Clotting of Fibrinogen. R. N. Lyons. —p. 131.
Significance of Primary Isolation of Influenza Virus by Inoculation of Mice or of Allantoic Cavity of Chick Embryos. F. M. Burnet and J. D. Stone.—p. 147.
*Method for Isolation of Influenza Virus from Throat Washings Without Filtrations. F. M. Burnet and J. D. Stone.—p. 161.

Isolation of Influenza Virus.—Burnet and Stone demonstrate that by the use of penicillin and sodium sulfadiazine it is possible to isolate influenza virus in the O form from unfiltered human throat washings in which it is present. The same method has allowed the successful isolation of virus from the nasal secretion of experimentally infected ferrets.

British Journal of Urology, London

17:45-84 (June) 1945

Observations on Renal Pain. J. T. Chesterman.—p. 45.
Blind Ending Duplication of Ureter. H. G. Hanley.—p. 50.
Urinary Fistula Following Scrotal Vasectomy. H. G. Hanley.—p. 54.
Malignant Disease of Urinary Bladder at Age of 27. A. L. Bell.—p. 55.
Solitary Benign Papilloma of Ureter. J. D. Ferguson.—p. 59.
Primary Carcinoma of an Ectopic Bladder and Primary Benign Papillomata of Ureter. W. Etherington-Wilson.—p. 62.
Composition of Calculi from 103 Cases of Urinary Lithiasis in Dogs. E. G. White.—p. 64.
Case of Vesicourethral Calculus. A. Miller.—p. 65.
Benign Tumors of Epididymis and Tunica Vaginalis: Report of 2 Cases. J. N. Robinson.—p. 68.

British Medical Journal, London

2:145-172 (Aug. 4) 1945

Problems of Naval Warfare Under Climatic Extremes. M. Critchley. —p. 145.
*Bactericidal Effect of Mixtures of Ethyl Alcohol and Water, with Special Reference to Sterilization of Skin, and Note on Comparable Effects of Ether. G. T. L. Archer.—p. 148.
Estimation of Serum Proteins. H. Hoch and J. Marrack.—p. 151.
Four Cases of Typhus Fever in Great Britain. H. L. W. Beach and J. K. Rennie.—p. 153.
Sore Finger Tips in Industry: Protection by Hydrogen Peroxide. J. V. Bates.—p. 154.
Therapeutic Trial of Choline Chloride in Infective Hepatitis. J. S. Richardson and W. S. Suffern.—p. 156.

Ethyl Alcohol and Water for Sterilization of Skin.—The measured volumes of alcohol and water were slightly stronger than their nominal strength expressed as percentages by volume. Archer found that for short exposure and on a dry surface the effective range of strengths of alcohol for the killing of nonsporing bacteria is between 90 and 50 per cent. Ninety-five per cent and above are partially ineffective, 100 per cent being especially so. The lower surface tension of stronger alcoholic mixtures suggests that the upper limits of this effective range may be preferable to the lower, though against this must be considered the more pronounced fixing effect of strong alcohol, which may cause the coagulation of an exudate and the consequent protection of living organisms within the coagulum so formed. Since the normal skin is more or less moist, the effective range of alcohol for use on it is somewhat different. The 100 per cent strength is commonly effective—at least on moister skins and under tropical conditions of temperature and humidity. The washing of the skin before the application of alcohol might exert a similar effect unless subsequent drying is thorough. The value of a low surface tension may well be of importance in increasing spread and penetration for skin sterilization. It is therefore considered that, as a general recommendation under all climatic conditions, 80 per cent of alcohol by volume is probably most suitable for skin sterilization, though this will not be more effective than any other nonpersistent agent for dealing with deep lying resident flora. Ether is quite ineffective as a sterilizing agent for the skin, since its effect is very slight on staphylococci and streptococci when applied to a surface—though it is effective against certain bacillary forms, both gram positive and gram negative.

2:173-204 (Aug. 11) 1945

Problems of Naval Warfare Under Climatic Extremes. M. Critchley. —p. 173.
Criticism of the Bassini Operation and Its Modifications. G. B. Mair. —p. 178.
Bassini's Operation for Inguinal Hernia. T. L. Gordon.—p. 181.
*Relation Between Gastric Acidity and Anterior Pituitary-like Hormone Content of Urine in Pregnant Women. S. Way.—p. 182.
Diarrhea Due to Giardia Lamblia. J. F. Fraser and R. Taylor.—p. 184.

Gastric Acidity and Urinary Hormone Content During Pregnancy.—Way observed in hyperemesis gravidarum a high incidence of diminution of gastric acidity in patients with hydatidiform mole. Since hydatidiform mole is associated with the presence in the urine of large amounts of anterior pituitary-like gonadotropic substance, it appeared that this factor might be responsible for the low secretion of acid in the gastric juice. Investigations were made on 63 patients who gave no history of gastric disorders. Twenty-two were between the thirty-fifth and fortieth weeks of pregnancy, 20 between the twentieth and twenty-ninth weeks and 21 between the eighth and sixteenth weeks. In addition 4 other patients were studied. One of these had a missed abortion and 1 a dead fetus at full term; 1 had a hydatidiform mole and one a chorionepithelioma. Evidence was obtained to show that in human pregnancy there appears to be some relation between the free and total acid in the gastric juice and the amounts of anterior pituitary-like gonadotropic substance secreted in the urine, and that it seems to be inversely proportional.

Edinburgh Medical Journal

52:241-288 (July-Aug.) 1945

Transition from War Surgery to Civil Surgery. W. Anderson.—p. 241.
Employment and Health. T. Ferguson.—p. 252.
Basic Sciences in Surgery. J. Z. Yung.—p. 262.
Diagnosis and Description of Cancer. W. F. Harvey.—p. 277.

Lancet, London

2:97-128 (July 28) 1945

Acridine Sulfonamide Compounds as Wound Antiseptics: Clinical Trials of Flavazole. J. McIntosh, R. H. M. Robinson, F. R. Selbie, J. P. Reidy and H. E. Blake.—p. 97.
Assessment of Male Fertility by Semen Analysis: Attempt to Standardize Methods. Clare Harvey and Margaret Hadley.—p. 99.
*Combined Action of Penicillin and Bacteriophage on Staphylococci. F. Himmelweit.—p. 104.
Syringe Transmitted Hepatitis. E. M. Darmady and C. Hardwick. —p. 106.
*Prolonged Administration of Quinacrine: Its Effect on Health. W. R. M. Drew and J. Reid.—p. 107.
Periarteritis Nodosa in Thiourea Therapy. P. C. Gibson and J. T. Quinlan.—p. 108.

Action of Penicillin and Bacteriophage on Staphylococci.—The organism used in the experiments was staphylococcus S3K. The bacteriophage was staphylococcus phage K producing a maximum titer of 10^9 with staphylococcus S3K. Its activity was measured by determining the last effective tenfold serial dilution. The penicillin was the TRC 22 preparation of the sodium salt with a potency of 187 units per milligram. Degrees of lysis were assessed by comparison of turbidity with standards made from suspensions of formolized (1 per cent) staphylococcus cultures. Viable counts were made by the poured plate method. Himmelweit found that penicillin does not affect multiplication of staphylococcus phage K, acting on staphylococcus S3K, nor does it interfere with the lethal and lytic action of this phage. Staphylococcus phage K and penicillin together produce more rapid killing and lysis of staphylococcus S3K than either alone. Together they also effect rapid and complete sterilization, indicating that penicillin resistant organisms are killed by or through the agency of phage and vice versa. Lysis by bacteriophage as an "indicator" is capable of detecting concentrations of penicillin of 0.001 unit per cubic centimeter or less.

Prolonged Administration of Quinacrine.—Drew and Reid investigated 102 soldiers returning home from West Africa. Quinacrine had been ordered for all men as a malarial suppressive for the last four to eighteen months of their tour of duty. Malignant tertian (Plasmodium falciparum) malaria was the most important disease encountered. There were no cerebral or other grave forms of the disease, no complications like chronic splenomegaly and severe anemia. This favorable state of affairs is probably largely due to the antimalarial action of quinacrine. Nine men had slight hepatic and splenic enlargement, and 3 others had palpable spleens, but these conditions were symptomless. The hippuric acid synthesis test indicated temporary impairment in liver function in 9 men, 3 of whom had slight hepatic enlargement; but this was of doubtful significance since other liver function tests were all normal. Liver puncture biopsy of slightly enlarged livers showed that these had no deviation from the normal structure. There is no evidence that quinacrine in suppressive doses causes liver damage or other ill effects, but there is good reason to believe that the drug has prevented deaths from severe forms of malaria and from complications such as blackwater fever, and that its use can eliminate disability from chronic malaria.

Medical Journal of Australia, Sydney

2:1-32 (July 7) 1945

Farewell to "Forty-Four." H. Sutton.—p. 1.
Disease of Gallbladder. H. Bullock.—p. 7.
Acute Disseminated Lupus Erythematosus, with Report of Fatal Case. G. B. Baldwin.—p. 11.

2:33-64 (July 14) 1945

*Etiology of Hemolytic Disease of Newborn. R. J. Walsh.—p. 33.
Incidence of Extrapulmonary Tuberculous Infection in Fatal Pulmonary Tuberculosis. R. A. Willis and D. B. Rosenthal.—p. 39.
Corynebacterium Diphtheriae: Resistance to Drying; Acquired Resistance and Its Stability. S. G. Ross.—p. 42.
*Observations on Sensitivity of Staphylococci to Penicillin. E. A. North and R. Christie.—p. 44.
Administration of Penicillin by Continued Implantation of Needle. Z. Freeman.—p. 46.

Etiology of Hemolytic Disease of the Newborn.—Walsh studied the relationship of blood group factors, especially the Rh factor, to the etiology of hemolytic disease of the newborn in 107 instances of the disease. The mother had Rh

negative blood and the child Rh positive blood in 92 per cent of the families investigated. An Rh agglutinin was found in the serum of 48 per cent of the mothers examined. The severity of the disease in the child was not related to the presence of the Rh agglutinin in the mother. The frequency and the severity of the disease generally increased with an increasing number of pregnancies, although some exceptions were noted. It is possible that extracorpuscular Rh substance in the fetus may absorb some Rh agglutinin before it reaches the Rh positive erythrocytes. It was assumed that in 83 mothers with Rh negative blood the Rh factor was responsible for the hemolytic disease in the child, but there still remain the children with hemolytic disease who are born of mothers with Rh positive blood. The disease in seven such families investigated might be explained either by an ABO group incompatibility between the mother and the child or by the presence of an unknown agglutinin in the mother's serum. In five of the seven families there was an ABO group incompatibility, but in two families the mother and child belonged to the same ABO grouping. It may be pure coincidence that in the 2 latter cases the father had Rh negative blood. Unfortunately the possibility of the presence in the father's cells of an Hr or other agglutinogen could not be investigated. The relationship of the Rh factor to the etiology of repeated miscarriages, multiple stillbirths and physiologic jaundice was investigated in a number of instances. The Rh factor was not the etiologic agent in the majority.

Sensitivity of Staphylococci to Penicillin.—North and Christie studied 128 strains of staphylococci of known biologic and metabolic characteristics, collected from various sources before the advent of penicillin treatment; all were tested for penicillin resistance. Thirty-one strains from hospital wards in which penicillin has been used extensively, particularly in local application to wounds, were also tested for resistance to penicillin. Their biologic and metabolic characteristics were compared with those of the 128 strains mentioned. Of the 128 strains from "nonpenicillin" sources, 123 were inhibited by one-eighth unit or less of penicillin per cubic centimeter, 2 were inhibited by one-fourth unit and 3 were inhibited by half a unit. The 5 strains showing slightly increased resistance were nonpathogenic. Of the 31 strains from patients in penicillin treatment wards 18 showed considerable resistance to the drug. All were pathogenic. The detection of such a large proportion of penicillin resistant strains in cultures received from penicillin treated lesions was unexpected. These strains showed no differences in common properties from normal strains. It is not known whether these resistant strains develop mainly from sensitive parent organisms in the same wound or are the result of cross infection either from carriers or air borne. From this preliminary study it has not been possible to determine to what extent these resistant strains have delayed the sterilization and healing of wounds.

Presse Médicale, Paris

53:229-240 (May 5) 1945

*Late Activation After Negative Tuberculin Tests. A. Courcoux, J. Génévrier, M. Duret and A. C. Maclouf.—p. 229.
Angina Pectoris from Coronaritis in Young Persons. A. Jouve and R. Oddo.—p. 230.
Stricture of Ureter After Radium Therapy of Cancer of Cervix. L. Leger.—p. 231.

Late Activation After Negative Tuberculin Tests.—Courcoux and his associates believe that the late activation of tuberculin tests coincides most often with the acquisition of cutaneous sensitivity to tuberculin. This phenomenon is observed principally in subjects tested previously by the intradermal route. Late activation of old Mantoux tests is more frequent than that of old Pirquet tests. In one of their observations the authors were able to observe clearly the activation of tests performed more than twenty-four months before. This is the first observation in which so much time had elapsed between intradermal injection of tuberculin and its subsequent manifestation. In most of their observations the belated activation caused very persistent reactions (several months). It is possible that the persistence of the induration may be linked to the amount of tuberculin that has been used. A mild and fleeting reaction may be elicited by a small dose, whereas a large dose may elicit a more intense and lasting reaction. In female patients who have been tested many times, late activations may raise an esthetic problem. Young girls complained of the persistence of disagreeable indurations in the deltoid region, and nurses have asked that the tests be made on the thigh. Contrary to peremptory affirmations of certain observers, the authors do not think that retarded activation is the first sign of a severe primary infection.

Acta Medica Orientalia, Jerusalem

4:207-242 (July) 1945

Refrigeration Anesthesia in Poor Risk Amputations. F. Mandl.—p. 207.
*Significance of Hypocorticoadrenalism for Diagnosis and Therapy of Certain Disorders of Joint and Muscles. E. Lyon.—p. 219.
Fibrin Body: Report of Case with Unusual Feature. S. Schorr.—p. 224.
Treatment of Deafness with Bencylcinnamate. Seelenfreund.—p. 228.

Hypocorticoadrenalism in Disorders of Joints and Muscles.—Lyon presents the case of a woman aged 56 in whom an existing hyperthyroidism had grown worse after the menopause. She also exhibited symptoms referable to insufficiency of the adrenal cortex: adynamia, gastrointestinal symptoms, arthropathy and muscular pain. She was given intramuscular injections of a concentrated extract of adrenal cortex, at first every day and later every second day. Soon after the institution of this treatment, pain and stiffness of the left shoulder joint subsided and other joint pain disappeared completely. Appetite improved, weight increased, and nausea, diarrhea and mental depression disappeared. Some of the symptoms reappeared when the injection of the cortical extract was discontinued, but they subsided again following the oral administration of a cortical extract. The author cites further evidence of the involvement of hypocorticoadrenalism in the pathogenesis of spondylarthritis ankylopoietica. He suggests that the prolonged inflammatory infectious process in ankylosing spondylarthritis suggests a toxic depression of the adrenal cortex function as it is observed in diphtheria, scarlet fever and influenza. He also cites a case which indicates that hypocorticoadrenalism plays a part in the pathogenesis of dermatomyositis. Adrenal cortex extract therapy should be considered in the aforementioned conditions.

Acta Chirurgica Scandinavica, Stockholm

90:495-588 (Feb. 10) 1945

Atypical Trigeminal Neuralgia Localized to Ophthalmic Division and Its Surgical Treatment. L. Preber.—p. 495.
Stellectomy by Lateral Scalenovertebral Approach. C. van Gelderen.—p. 519.
Experiments on Oxygen Therapy in Experimental Meteorism. A. Ringsted and K. Andersen.—p. 529.
*Primary Thrombosis of Axillary Vein: 7 Verified Cases of Thrombus Formation. E. Roelsen.—p. 547.
Femoral Fractures in Children: Some Views on Their Prognosis and Treatment. E. Hedberg.—p. 568.

Primary Thrombosis of Axillary Vein.—The disorder described by Roelsen is characterized by swelling of an upper extremity from the hand to the shoulder. The swelling does not pit like edema. The subcutaneous veins of the arm and the pectoral region are dilated and congested, and the hand and arm are somewhat cyanotic. There is a sensation of heaviness or slight pain in the arm, sometimes with reduction in muscular power. The history sometimes reveals excessive exertion with the involved arm. General symptoms, especially signs of infection, are absent. This condition, which is a manifestation of a more or less acute venous stasis, has been described under various terms, such as traumatic thrombosis of the axillary vein, exertion thrombosis or thrombophlebitis of the axillary (subclavian) vein and effort thrombosis. Recent investigations have revealed that the condition may develop in the absence of thrombosis. This has been confirmed by Roelsen in 3 of 7 cases under his observation. It is possible that in these cases thrombosis had existed previously (Veal's "post-thrombotic syndrome"). Surgical treatment in the form of venous resection is advisable only in protracted cases of stasis with repeated relapses. Venography may aggravate the stasis and edema and for this reason is inadvisable, particularly in the acute stage. Treatment with heparin was helpful in some cases. Immobilization is not advisable in thrombosis of the arm.

Book Notices

Acute Injuries of the Head: Their Diagnosis, Treatment, Complications and Sequels. By G. F. Rowbotham, B.Sc., F.R.C.S., Surgeon in Charge, Department of Neurological Surgery, Newcastle General Hospital, Newcastle, England. With a foreword by Norman M. Dott, M.B., Ch.B., F.R.C.S., Neurological Surgeon, Royal Infirmary, Edinburgh, Scotland. Second edition. Cloth. Price, $8.50. Pp. 424, with 201 illustrations. Baltimore: William Wood & Company, 1945.

This splendid presentation of the subject of injuries to the head has been prepared for the information of the general practitioner and the medical student rather than the specialist. That it has served a useful purpose is evidenced by the fact that a second edition has been called for within three years after the appearance of the first. The material is presented clearly and in detail from the personal experience and point of view of the author. There is, however, little with which any one could disagree. The illustrations are for the most part excellent and serve their purpose well. A few, notably figures 33, 78 and 162, should be replaced by clearer photographs. Figure 62 erroneously gives the impression that a localized lesion in the superior temporal convolution would give rise to deafness and figure 63 that there are motor fibers in the anterior limb of the internal capsule. These, however, are all trivial matters which do not detract from the inherent value of the book. The practice of placing the references at the bottom of the page is a mistake. It is rare that the reader is in need of the full reference at the time he is reading the text, whereas having the references scattered throughout the book make them very difficult to find. The last chapters, on rehabilitation, post-traumatic epilepsy and the final results of head injuries, will be found of interest to many readers. The other chapters dealing with the mechanism, pathology, symptomatology and treatment of craniocerebral injuries will reward their reading by all who deal with these common injuries.

Hygie contre vénus: Guerre à la syphilis! Par Adrien Plouffe, docteur en médecine et en hygiène publique, directeur adjoint du Service de santé de Montréal. Lettre-préface d'une mère de famille. Paper. Price, $1.25. Pp. 221. Montreal: Les Editions Lumen, 1945.

This book, by a French Canadian physician, is a popular presentation of arguments and justification for instruction of young people with regard to the venereal diseases. It quotes religious authorities to substantiate the assertion that the maintenance of good health is a moral obligation. The author has evidently had in mind the need to make information available to comparatively simple and unsophisticated readers. Some of the principal facts with regard to syphilis and gonorrhea are given, and much attention is paid to the effects of syphilis in families and on children. The author strongly and repeatedly advocates premarital examinations. The book will probably be of considerable service to the type of reader whom the author had in mind.

Practical Anatomy of the Rabbit: An Elementary Laboratory Text-Book in Mammalian Anatomy. By the Late B. A. Bensley, Ph.D. Seventh edition. Revised and edited by E. Horne Craigie, Ph.D., Associate Professor of Comparative Anatomy and Neurology, in the University of Toronto, Toronto. Fabrikoid. Price, $3.50. Pp. 358, with 114 illustrations. Philadelphia: Blakiston Company, 1945.

The recurring editions (two since the death of the author) demonstrate the superior value and service of this book in the elementary teaching and study of mammalian anatomy. The present edition has a new section on the sense organs and an enlarged section on the structure of the liver. The illustrations, as to both gross and microscopic anatomy, are excellent.

Your Eyes Have Told Me. By Louis H. Schwartz, M.D. Cloth. Price, $2.75. Pp. 208, with illustrations. New York: E. P. Dutton & Company, Inc., 1945.

The author presents his material for the layman and makes a rather dramatic effort to explain the various diseases and anomalies of the visual organ and its adnexa in simple language and by example. At times the language isn't quite simple enough. In the preface he defines what he calls the four O's: optician, optometrist, oculist and ophthalmologist. The chapter subjects are interesting. The first, "Your Eyes Have Told Me," covers the relation of the eyes to general disease; "The Sins of the Fathers" is on what he calls hereditary Syphilis; "The Strange Case of Lady Nicotine and John Barleycorn" is about toxic amblyopia; "The Siamese Twins" deals with sympathetic ophthalmia; "The Lady With the Hard Eyes" is about glaucoma; "The Popeye Clinic" describes proptosis, and "Monarch of All I Survey" presents the subject of visual fields. "Thru the Looking Glass" and "Fundus Land" deal with the ophthalmoscope and fundus disease. On page 83 he states that contact glasses are placed against the cornea and held in place by the eyelids. The glass does not make contact with the cornea. It is held against the sclera by capillary attraction. On page 86 he states that "sympathetic ophthalmia" is more apt to follow a punctured wound in the cornea. A corneal wound alone never causes this disease. It follows injury to the uvea, regardless of whether the cornea or the sclera is the site of perforation. There are seven colored plates illustrating two normal and twelve pathologic conditions.

Enfermedades del corazón: Cirugía y embarazo. Por el profesor Dr. Ignacio Chavez, director del Instituto nacional de cardiología, México, D. F. Paper. Pp. 182, with 7 illustrations. México, D. F.: Edición de el Colegio nacional, 1945.

This book, dealing with the problems of pregnancy and surgery in the cardiac patient, is based on a series of lectures delivered by the author in the Colegio nacional in Mexico City. The book is divided into six chapters. The first four chapters deal respectively with the hemodynamics of normal pregnancy, the clinical alterations observed in pregnancy, the clinical findings in pregnant women with heart disease, and the considerations determining conception and the termination of pregnancy in the cardiac patient and the management of the cardiac woman who is pregnant. The last two chapters deal with the surgical risks involved in operating on the cardiac patient. The author has assembled from his large experience and a critical survey of the literature, including that in the English language, a masterful presentation of the entire subject. It is a meritorious addition to current literature and clarifies the risks of pregnancy and surgery in the cardiac patient. It has succeeded in its aim of assembling the subject matter for use by the general practitioner. The specialist also will find its perusal worth his while.

Refraction of the Eye. By Alfred Cowan, M.D., Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Second edition. Cloth. Price, $4.75. Pp. 278, with 184 illustrations. Philadelphia: Lea & Febiger, 1945.

This edition has been thoroughly revised and brought completely up to date in all scientific and technical aspects of the subject. The author employs the theory of ophthalmic optics in such a way that clinical aspects merge logically and in orderly sequence from their bases of scientific facts. In those portions of the text which deal with the theory of optics the method of detailed experiment, example and frequent repetition has been carried out. The reader is invited to make diagrams illustrating the theories involved, by following the contents of the text. This is a material aid in learning such a difficult subject as physiologic optics, a subject which, at its best, presents a stumbling block both to beginners and to those advanced in ophthalmology. The first five chapters are devoted to an elucidation of refraction and reflection at plane and spherical surfaces. Five paragraphs are devoted to lenses. Eight chapters contain the basic elements necessary in obtaining a refraction of the eye. The section on refraction proper is well organized and complete and gives a brief outline of all the tests in vogue to date. The final chapter contains a complete description of contact glasses. The author is not overly enthusiastic concerning their use. The illustrations are exceptionally well planned and can be easily followed. This book should be a necessary addition to any ophthalmologist's library, as it contains the basic fundamentals so necessary for a thorough understanding of the subject of refraction.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CLIMATE FOLLOWING RHEUMATIC FEVER

To the Editor:—**A man aged 23 had in 1930, at the age of 8, an attack of rheumatic fever with a mitral regurgitation murmur but no joint involvement. This cleared up during the summer of 1931. In the winter of 1932 he had another attack, and this time both the mitral and aortic valves were involved. The mitral regurgitation cleared up shortly thereafter, but he still has a well compensated aortic regurgitation murmur. From the fall of 1932 to the present he has spent the winters in southern Arizona without trouble of any kind. He now plans to live in the vicinity of Cincinnati. What are the chances of a recurrence of rheumatic fever while living in a climate as typified by that of Cincinnati or of New York? What prophylactic medication and dosages are recommended to prevent further rheumatic attacks?**

M.D., New York.

ANSWER.—While Ohio and New York both are areas with moderately high incidence rates for acute rheumatic fever, a patient of 23 has passed the age period of greatest susceptibility to this disease. The predisposition to further attacks of acute rheumatic fever which is observed following an initial attack gradually disappears, and in a patient like this, after an interval of fifteen years, this factor is probably not important. A mass of evidence has been developed to indicate that the prophylactic use of sulfadiazine in amounts of 1 Gm. daily will largely prevent the development of streptococcic disease due to sulfadiazine sensitive strains and, presumably for this reason, episodes of acute rheumatic fever. Sulfadiazine resistant strains of hemolytic streptococci are, however, appearing with increasing frequency and cannot be controlled by this procedure. While reactions to sulfadiazine in daily doses of 1 Gm., even when used for long periods, are infrequent, fatal complications occasionally do occur in the form of agranulocytosis or exfoliative dermatitis. The greatest incidence of streptococcic disease in Ohio and New York is ordinarily in the period of October 1 to June 1, and sulfadiazine prophylaxis, if used in these states, may be restricted to this portion of the year. However, it is doubtful that the probability of further episodes of acute rheumatic fever in the case under discussion is sufficient to warrant the use of this preventive procedure. Bacterial endocarditis perhaps constitutes a greater hazard than rheumatic fever for such a patient. Ideally it would be desirable to make a permanent home in an area of low incidence of streptococcic disease.

CEREBRAL SPASTIC PARALYSIS

To the Editor:—**What is the value of curare in the treatment of a case of what seems to be spastic cerebral palsy in a girl of 5 years, delivered by forceps? She seems to be fairly bright mentally but is unable to walk. Athetosis and incoordination are pronounced. She is able to talk and has good health otherwise.**

M.D., Nebraska.

ANSWER.—Curare has been used experimentally in cases of spastic cerebral paralysis but has not been used routinely because its use is not without danger. Curare, if given intelligently, can reduce or decrease muscle spasticity especially if followed by physical therapy, muscle education, hydrotherapy and occupational therapy. Unless a patient with spastic cerebral palsy can receive these helpful aids it is better not to use curare. If deformities are present a competent orthopedic surgeon should perform a tenotomy and any other procedures that are necessary. This should be followed by massage, hot water baths and galvanic stimulation. It is frequently surprising to see how well these patients do if they have normal intelligence.

SEBACEOUS CYST IN INFANT

To the Editor:—**An 8 months old baby has a sebaceous cyst just below the bridge of the nose about the size of a small bean. It is increasing slowly in size and is disfiguring. It seems to be filled with sebaceous material. Would it be dangerous to incise and curet a cyst in this particular position?**

M.D., Ontario.

ANSWER.—If the lesion is not infected, there is no reason why a sebaceous cyst like this should not be excised. It would probably be well to wait until the baby is a little older.

VITAMIN B COMPLEX IN DIABETES MELLITUS

To the Editor:—**What is the opinion of competent authorities as to the efficacy of the supplemental treatment of diabetes mellitus with vitamin B complex? I would appreciate references to the medical literature pertaining to its use in this disease.**

Major, M. C., A. U. S.

ANSWER.—The question, probably inspired by the report of Biskind and Schreier to the New York Academy of Medicine, that vitamin B complex used in treating diabetes would reduce or eliminate the use of insulin, involves two problems: (1) the possible effect of vitamin B complex in the treatment of uncomplicated diabetes mellitus; (2) the use of vitamin B complex for diabetic patients in the presence of complications which may require supplemental treatment with vitamins.

It is generally believed that in uncontrolled diabetes with glycosuria, polyuria and hyperglycemia the body may lack needed nutrients such as vitamins partly through loss by excretion and partly because the metabolic disturbance prevents their normal utilization. Therefore, while the diabetes is being brought under control by means of insulin and a diabetic diet, vitamin B complex may well be given, especially when diabetic coma has been present. Thiamine, riboflavin and nicotinic acid are considered to have a necessary place in the intermediary steps in carbohydrate metabolism (Soskin, in Wohl's Dietotherapy, 1945, p. 57).

Experiments such as those of Styron and his co-workers have been carried out in which diabetic rats and nondiabetic rats were studied during experimental thiamine deprivation and during the recovery when treatment with thiamine was given. No difference was observed in the length of time required by diabetic and nondiabetic rats to develop signs of deficiency. During the period of deprivation the glycosuria of the diabetic rats diminished, presumably because of the lowered food intake. Urinary sugar tended to reappear at the final stage of the deficiency during the time of polyneuritis. The carbohydrate tolerance tests showed little change until signs of pronounced deficiency appeared. Thus lowered tolerance occurred when, by reason of the neuritis, muscular activity and power were lost. Actually when thiamine intake was greatly increased, carbohydrate tolerance seemed to improve. Vorhaus, Labbé and Mosonyi and their co-workers have reported improvement. Martin has described intensification of diabetes in depancreatized dogs on a vitamin B free diet, with great improvement in carbohydrate tolerance when thiamine and riboflavin were given. Other workers, notably Lepovsky, Wood and Evans and McIntyre and Burke, have recorded but little change in glucose tolerance either with deficiency or with excess of vitamin B. An extensive literature on thiamine is given by Williams and Spies. Wilder states that "at present the evidence of value in diabetes from therapeutic doses of the vitamin B complex, or any of its constituents, is conflicting but suggestive. The diabetic organism probably requires more vitamin B_1 than easily is obtained in a mixed diet. When diets high in white flour are prescribed the danger of deficiency is increased, and with such diets it probably is wise to supplement the intake of the entire vitamin B complex by giving brewers' yeast. It has not been shown that doses of thiamine or riboflavin in excess of the amounts of these obtainable in well planned diets are therapeutically effective, except in cases in which the intake of these substances previously has been deficient." Certainly the therapeutic effect of giving vitamin B complex is not comparable in degree with that of a carefully balanced diet and insulin.

In cases of diabetes in which febrile complications, infections, pregnancy, lactation or achlorhydria have increased the need for or impaired the utilization of vitamins or when a definite neuropathy is present, vitamin B complex is generally useful. When a complicating vitamin deficiency exists, its relief may also be accompanied by improvement of the diabetes.

References:

Styron, C. W.; Tucker, H. S. G., Jr.; Rhodes, A. F.; Smith, T. C., and Marble, A.: Comparative Studies of the Effect of Thiamine Deficiency in Diabetic and Nondiabetic Rats, *Proc. Soc. Exper. Biol. & Med.* **50:** 242 (June) 1942.

Vorhaus, M. G.; Williams, R. R., and Waterman, R. E.: *Am. J. Digest. Dis. & Nutrition* **2:** 541 (Nov.) 1945.

Labbé, M.; Nepveux, F., and Gringoire, J. D.: *Bull. Acad. de méd., Paris* **109:** 689 (May 23) 1933.

Mosonyi, J., and Aszodi, Z.: *Klin. Wchnschr.* **17:** 337 (March 5) 1938.

Martin, R. W.: *Ztschr. f. physiol. Chem.* **248:** 242, 1937.

Lepkovsky, S.; Wood, C., and Evans, H. M.: *J. Biol. Chem.* **87:** 239 (June) 1930.

McIntyre, A. R., and Burke, J. C.: *J. Pharmacol. & Exper. Therap.* **64:** 465, 1938.

Williams, R. R., and Spies, T. D.: Vitamin B_1 (Thiamine) and Its Use in Medicine, New York, Macmillan, 1938.

Wilder, R. M., in Modern Medical Therapy in General Practice, edited by Barr, D. P., Baltimore, Williams and Wilkins **1:** 834, 1940.

BLOOD GROUP SPECIFIC SUBSTANCES—"UNIVERSAL DONOR" BLOOD

To the Editor:—What is the present status of the Witebsky substances A and B for converting all blood types into "universal donor" blood? Is it practical to use this material for banked blood in hospital blood banks? Is this material commercially available?

Walter J. Siebert, M.D., St. Louis.

ANSWER.—The use of solutions of the group substances A and B for conditioning group O blood to render it safe for use for patients of all blood groups is still in the experimental stage. In settling such a problem two points must be established: (1) the safety of the preparation and freedom from unpleasant reactions and (2) the efficacy of the preparation. Klendshoj and Witebsky (Transfusion of O Blood, Conditioned by the Addition of Blood Group Specific Substances, THE JOURNAL, Aug. 11, 1945, p. 1091) have established the first point beyond a reasonable doubt. Some of the earlier preparations of group substances had caused occasional unpleasant flushing of the skin, presumably because of the presence of residual animal proteins, but this difficulty seems to have been overcome in the more recent preparations. The second point is difficult to solve because dangerous reactions are extremely rare even when group O individuals are used as universal donors without any special precautions. In a series of 819 transfusions, Rosenthal and Vogel (Observations on Blood Transfusions from Universal Donors, in Mudd and Thalhimer's "Blood Substitutes and Blood Transfusion," Springfield, Ill., Charles C Thomas, 1942) encountered only a single hemolytic reaction that could be attributed to a high titer of isoagglutinins in the donor's serum, and this patient recovered from the reaction. Only a single completely proved case of a fatal hemolytic reaction due to the use of universal donor blood has been reported (Wiener, A. S., and Moloney, W. C.: Hemolytic Transfusion Reactions; Differential Diagnosis; "Dangerous Universal Donor" or Intragroup Incompatibility, *Am. J. Clin. Path.* **13**:74 [Feb.] 1943); all the earlier reports must be discounted because they failed to take into account the possibility of reactions due to intragroup incompatibility with regard to the Rh factor. There has also been one report of a fatality from the use of unpooled plasma (Albertson, E. C.: Fatality Due to the Transfusion of Unpooled Plasma, *Am. J. Clin. Path.* **15**:128 [April] 1945). The titers of the isoagglutinins in these 2 cases were so extremely high that probably they were not natural isoagglutinins but immune isoagglutinins. (The injection of pooled human plasma or therapeutic horse serum, both of which contain A and B group substances in solution, may stimulate the production of high titered immune anti-A and anti-B isoagglutinins.) If group O donors with a history of having received a plasma transfusion or a therapeutic serum injection are rejected as universal donors, this would remove a major source of danger from the use of universal donors (Wiener, A. S.; Soble, R., and Polivka, H.: Simple Method of Preparing Potent Blood Grouping Sera, *Proc. Soc. Exper. Biol. & Med.* **58**:310 [April] 1945). With regard to the efficacy of the group substances in preventing dangerous reactions from the indiscriminate use of group O individuals as universal donors, there is no direct evidence supporting this claim. The claim is based entirely on the ability of the group substances to cause in vitro a definite reduction in titer of the isoagglutinins in normal group O plasma. Tests have not been made to determine whether a similar reduction in titer would occur with plasma containing high titered immune anti-A and anti-B isoagglutinins, such as are produced after plasma transfusions or injections of horse serum. The only way to settle this problem is take such a dangerous sample of group O plasma and divide it into two portions; inject half into a group A (or group B) patient unmodified; the remainder should be injected into a second patient of group A (or group B) after the addition of group substances.

The group substances are not yet commercially available. Group substances may be obtained for experimental use, however, from the Eli Lilly Company. In the meantime, the best procedure would be to weed out donors with dangerously high titers of isoagglutinins by testing a fixed dilution of their plasma, e. g. 1:50, with standard A_1 and B cells, or with the patient's cells. Those whose plasma does not react in this dilution are safe to use as universal donors. A conservative estimate would be that only one tenth of group O donors need be rejected as unsafe, and this simple procedure would obviate the need for expensive group substances. Incidentally, the injection of group O blood conditioned with group substances would cause a rise in titer of the isoagglutinins in the patient's serum, and it is not yet certain whether or not this might be harmful to a future infant, in case, for example, the patient is a woman of group O who later bears a group A child. Reference:

Wiener, A. S.: Pathogenesis of Congenital Hemolytic Disease Erythroblastosis Fetalis. I. Theoretical Considerations, Amer. Jour. Dis. Child., in press.

CORONARY THROMBOSIS AND PREVENTIVE INOCULATIONS

To the Editor:—An air cargo officer aged 38, 70½ inches (178 cm.) tall and weighing 145 pounds (66 Kg.), reported for physical examination and the inoculations necessary to leave the continental United States. On that occasion, at or about 2:15 p. m., he received 0.5 cc. of triple typhoid vaccine as prepared by the Army Medical School, 1 cc. of typhus vaccine (Cox) and 0.5 cc. of aluminum precipitated tetanus toxoid. Physical examination revealed the heart and blood vessels to be normal, the blood pressure 120/70; he was considered fit for arduous duty. Following the injections it is definitely stated that there was no collapse due to anaphylactic reaction or severe shock. On the evening of the same day symptoms characteristic of coronary occlusion developed. The patient was seen at about 8:30 p. m. by another physician, who reports that he complained of a severe pain in the region of his heart. The doctor was unable to make a diagnosis at this time but administered two hypodermics of morphine with scopolamine to relieve the pain. Another physician reported that examination of the heart with a stethoscope on the evening of the following day indicated a weak contraction and a friction rub over the lower heart area and that percussion revealed increased dulness to the right and left heart areas. The blood pressure at this examination was 105/80; the heart rate was not recorded. There was a rise in temperature, which continued for several days. Two days after the attack the leukocyte count was 15,000 and the blood pressure was 80/55. Electrocardiograms taken the first and third days subsequent to the incident revealing departure from normal predicate myocardial infarction of recent origin involving the anterior aspect of the ventricle. He was discharged from the hospital seven weeks later apparently in good condition, by ambulance. The final diagnosis was acute coronary thrombosis and myocardial infarction. Convalescence has been satisfactory. Was this patient's coronary thrombosis caused by the inoculations? If so, please discuss the mechanism by which this condition was produced.

Carroll E. Bingman, M.D., New York.

ANSWER.—It is probable that the attack of myocardial infarction secondary to acute coronary thrombosis had no definite relationship to the typhoid and tetanus inoculations that preceded it except an accidental one of coincidence in time. Considering the millions of persons of all ages who have received such inoculations, the precipitation of coronary thrombosis thereby should have become evident long ago. In years of experience with patients with coronary heart disease, infrequent coincidences of acute occlusion with one possible minor strain after another have been noted, but no direct relationship has been proved. Severe strain, as from trauma or strenuous effort, and prostration, such as may occur postoperatively, have, to be sure, seemed to favor the precipitation of an acute coronary thrombosis via a subintimal hemorrhage or rupture of a "cholesterol abscess," but in the absence of such severe strain no direct relationship can be deduced.

KÖHLER'S BONE DISEASE

To the Editor:—A white man aged 48 who was employed as a pin boy in a local bowling alley stated that about April 10, 1945 he was struck by a pin ball on the inner aspect of his left foot. This area became swollen, painful and ecchymotic. He was being treated for a contusion and then came to me on April 23, at which time no swelling or ecchymosis was present but there was exquisite tenderness over the region of the left scaphoid (tarsal) bone. The x-ray showed a small area of bone absorption involving the distal and medial portion of the tuberosity of the scaphoid bone and partially obliterating the bony trabeculations. I immobilized the foot in a cast, which I removed on May 23, at which time x-ray examination showed no material changes except that the cortical area appeared to be broken. Is this a cortical hemorrhage due to trauma which has caused an aseptic necrosis? What is advised as to treatment and prognosis?

M.D., Connecticut.

ANSWER.—The history of this patient suggests the possibility of Köhler's disease (osteochondritis) of the tarsal scaphoid. However, such conditions usually occur in younger persons. There is an excellent article by M. G. Karp on Köhler's disease of the tarsal scaphoid published in the *Journal of Bone and Joint Surgery* (**19**:84 [Jan.] 1937). Such a condition could be due to an acute bone atrophy of unknown etiology and may extend over many months but gradually responds to heat, massage and moderate activity. The subject of acute bone atrophy is well presented in an article by Thomas P. Noble and Emil D. W. Hauser published in the *Archives of Surgery* (**12**:75 [Jan.] 1926).

COMBINED IMMUNIZATION AGAINST WHOOPING COUGH AND DIPHTHERIA—CORRECTION

The Query and Minor Note with this title published in The Journal April 21, 1945 stated that the combined diphtheria toxoid, alum precipitated, and pertussis vaccine produced by Eli Lilly and Company was made with "washed" bacteria. The firm writes that "washing" these organisms reduces antigenic potency and therefore this step is not employed in the preparation of "Perdipigen" nor is it used for the other vaccines of that company for active immunization against whooping cough.